THIS WEEK'S National Petroleum NEWS

Index to Coming Meetings

Tennessee Oil Men's Association, Peabody Hotel, Memphis, Tenn., July 22.

Independent Oil Men's Association of New England: Fall River, Mass., Aug. 14; Providence, R. I., Sept. 11; Worcester, Mass., Oct. 9.

North American Gasoline Tax Conference, Book-Cadillac Hotel, Detroit, Mich., Aug. 7, 8, and 9.

American Petroleum Institute division of development and production engineering, Texas-Louisiana-Arkansas district, Galvez Hotel, Galveston, Tex., Sept. 5, 6.

National Petroleum Association, Hotel Traymore, Atlantic City, N. J., Sept. 18, 19, 20.

Rocky Mountain Oil & Gas Association, Montana division, Calgary, Alta., Sept. 18, 19, 20.

National Safety Council, Petroleum Section, Congress Hotel, Chicago, Sept. 30, to Oct. 5.

International Petroleum Congress, Tulsa, Oct. 5 to 12.

Independent Oil Men of America, Stevens Hotel, Chicago, Oct. 21, 22, 23.

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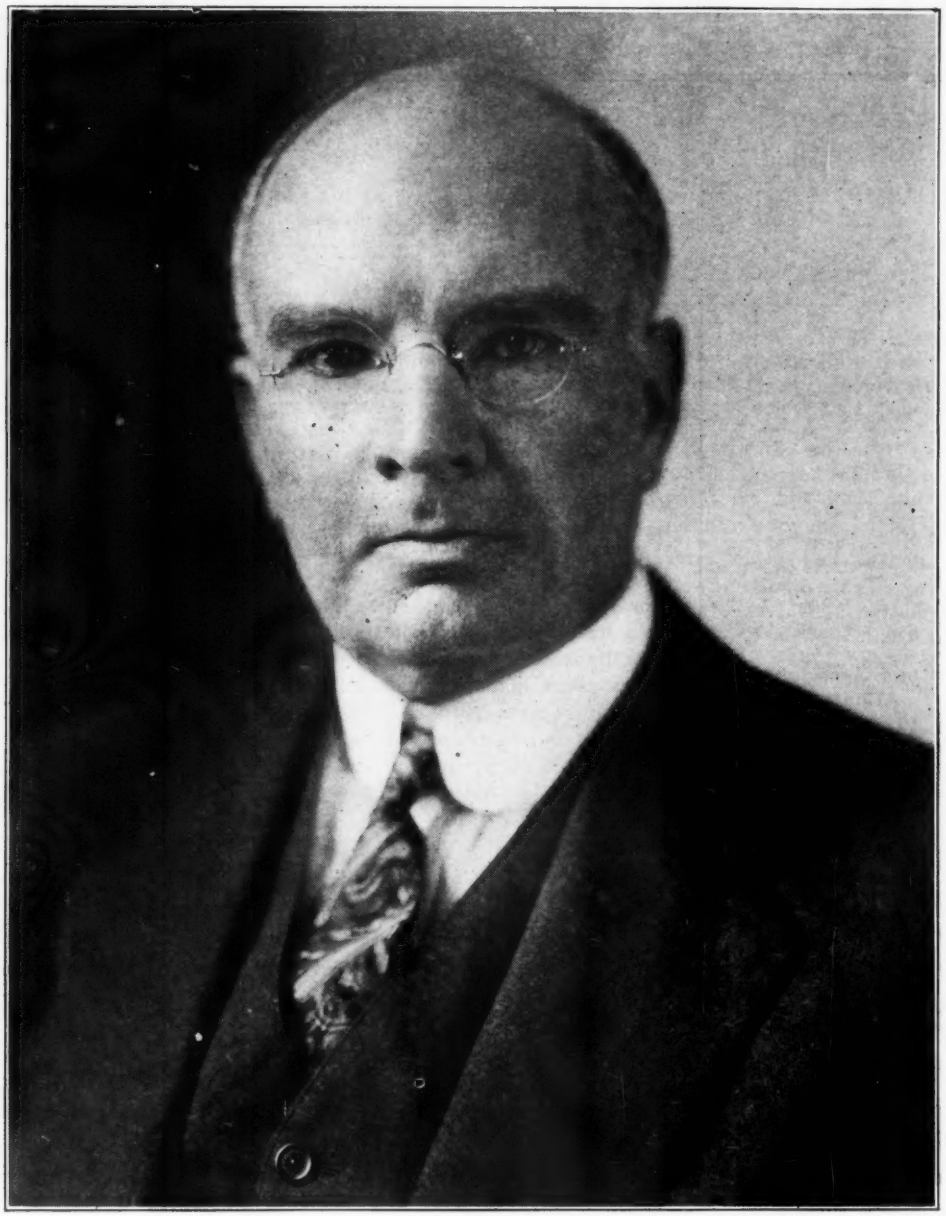

—Photo by Underwood & Underwood

"JUDGE" AMOS L. BEATY, who recently was elected chairman of the Transcontinental Oil Co., has been an oil industry counsel and executive since the discovery of Spindletop in 1907, when he became associated with The Texas Co. He is a native of Texas and was a practising attorney there when the Spindletop boom came.

In 1913 the "Judge" was made general counsel of The Texas Co. He was elected president in 1920 and chairman in 1926. He resigned from that position late in 1927.

Throughout his period of service Mr. Beaty has been a leader in industry councils, particularly in the American Petroleum Institute.

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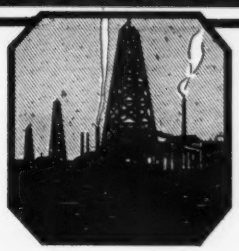

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Hydrogenation Process to Be Used First In Conversion of Heavy Fuel Oil

By Paul Truesdell
N. P. N. STAFF WRITER

NEW YORK, July 6

WHILE the development of a process for catalytically hydrogenating heavy petroleum fractions to make gasoline is regarded as of enormous importance to the oil industry and to the world, it is likely that the first commercial practice of the process will be as a supplement to present day cracking operations instead of as a substitute for them.

The American rights to the process are owned by the Standard Oil Co. of New Jersey through a deal made with the I. G. Farbenindustrie of Germany and an extensive research and development program has been carried out over the past year and a half by the Standard of New Jersey.

In a word, the development of the process means that under conditions of heat and pressure in the presence of a catalyst, hydrogen and carbon can be linked together in just about any desired combination. Theoretically, solid coke from the cracking still and gaseous hydrogen could be chemically combined in the proportions to make gasoline or lubricating oil of any desired characteristics, or pure paraffin wax or any other hydrocarbon.

Actually, of course, technologists do not expect to carry the process to any such lengths, not for many years at least. Application of the hydrogenating art to refining operations will be confined within the limits of economics. However its possibilities seem almost boundless.

The June issue of *The Lamp*, house organ of the Standard of New Jersey carries the following statement:

"The importance of this development to the oil industry can hardly be overemphasized since it definitely removes the fear of a permanent shortage of petroleum products and permits the development of our crude oil supplies on a rational basis."

Construction of a plant to handle 5000 barrels of oil a day is now under way at the Standard of New Jersey's Bayway refinery and it is to be followed by the erection of a similar plant at the Humble's Baytown, Texas, refinery.

It is understood that the hydrogen for the operation of this first commercial plant will be derived by processing the fixed gases from cracking stills and crude stills and the heavy material used will be cracked and other heavy residual oils which are unsalable or salable only at a very low price. These products will be combined to give a yield of gasoline within limits bounded on one side by the cost of producing the gasoline and on the other by the market price.

Hydrogen also can be produced, it is expected, from natural gas, at a cost within the bounds of economic possibility.

The Standard officials are very reticent about operating details of the process. They say there really is nothing in the way of operating costs available now inasmuch as no commercial plant has yet been operated.

It is stated that the pressure used is in the neighborhood of 3000 pounds per square inch and the temperatures are pretty well in the range employed by cracking, that is from 650 to 950 F. They will not reveal what catalyst is used.

Engineers familiar with

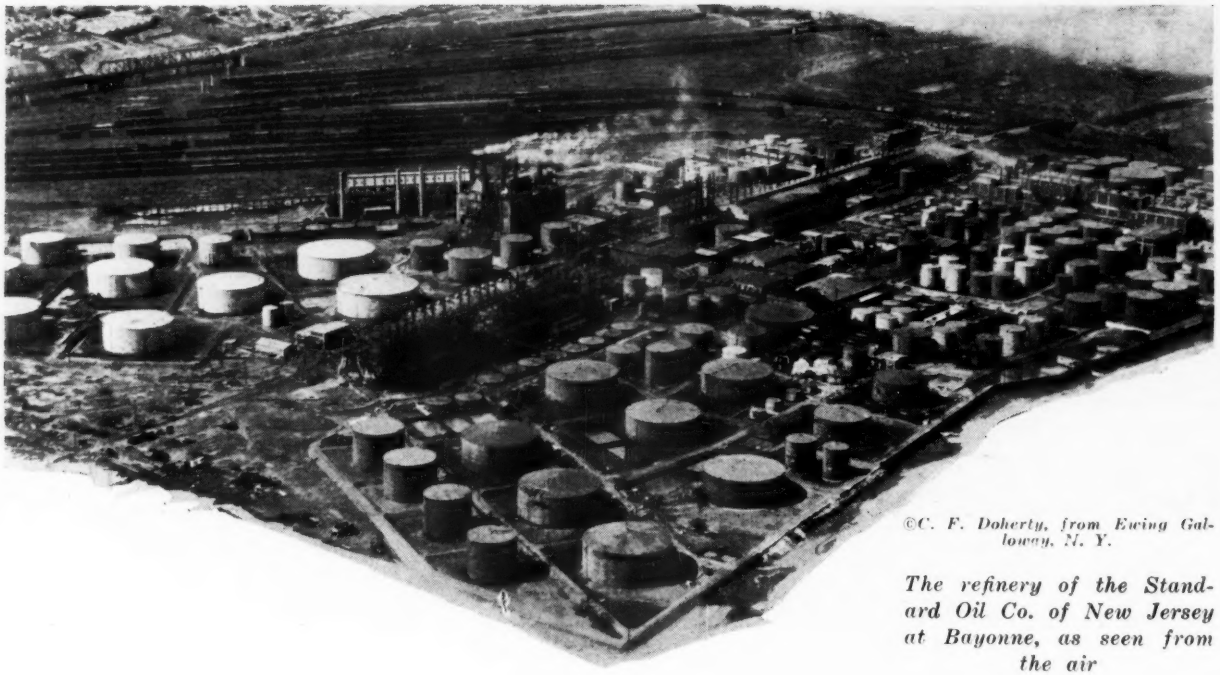
FORTY-TWO gallons of motor gasoline from a barrel of crude, or from a barrel of heavy residue fuel oil.

Conversion of a barrel of crude of any characteristics into a barrel of almost any petroleum product desired.

Manufacture of quantities of motor fuel, and other products, from lignites, low grade coal or oil shales.

These possibilities of the application of the German invented hydrogenation process, rights to which in this country are held by the Standard of New Jersey interests, make important its consideration in any discussion of the oil conservation problem.

"The importance of this development to the oil industry can hardly be overemphasized since it definitely removes the fear of a permanent shortage of petroleum products and permits the development of our crude oil supplies on a rational basis," says the last issue of The Lamp, official Standard of New Jersey publication, in commenting on the process.



©C. F. Doherty, from Ewing Galloway, N. Y.

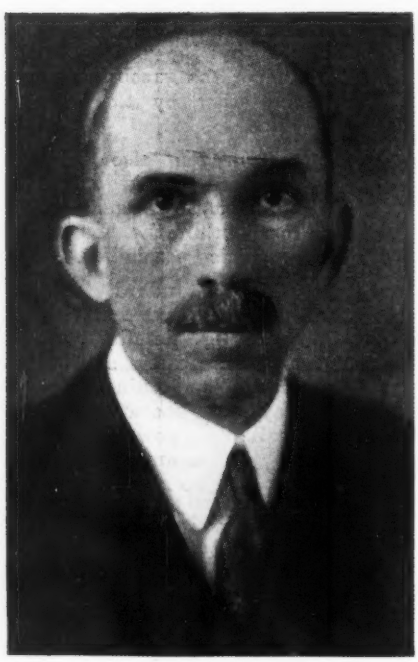
The refinery of the Standard Oil Co. of New Jersey at Bayonne, as seen from the air

the costs of building refinery equipment in general estimate that the cost of building a hydrogenating plant would run about twice as much per barrel of capacity as the average cracking plant, that is from $700 to $900 per barrel.

It appears that the hydrogenating process will be very effective in the treatment of high sulfur crudes or distillates or residues from such crudes. It is stated that a 70 per cent topped Crane-Upton crude—that is a crude from which the light ends totaling 30 per cent by volume had been removed—has been converted into gasoline containing well below 0.10 per cent sulfur, although the crude originally contained close to 2 per cent sulfur.

During hydrogenation it is stated that most of the sulfur present combines with hydrogen and is driven off as hydrogen sulfide gas. Other sulfur compounds are either removed or rendered harmless during the hydrogenation process, it is stated.

The most promising benefit hoped for immediately from hydrogenation is the possibility it offers of reducing the quantity of fuel oil thrown on the market. As everyone knows, it is impossible to meet the present day demands for gasoline without at the same time making a quantity of fuel oil and coke that is out of all proportion to the size of the market, hence these two products must be disposed of at a loss.



E. M. Clark, president of the Standard Oil Development Co. which had in charge the development of the hydrogenation process

IT IS pointed out that fuel oil is selling right now in New York harbor at $1 a barrel for fueling ships when, in proportion to the price of coal and the relative merits of the two fuels, the oil ought to be bringing $1.85 a barrel. In the Mid-Continent, the price of fuel is about 50 cents a barrel where, to be in line with the price of coal, it ought to bring $1.40 a barrel.

When the almost worthless heavy residue which is the end product of most cracking operations can be chemically combined with the hydrogen derived from the almost worthless fixed gases which represent the upper extreme of the cracking operation, to make 100 per cent of gasoline which sells at a profit, a distinct gain will have been made in the refining industry, it is pointed out.

And when it is considered that any fuel oil or gas oil can be taken off the market and converted wholly into gasoline, the great importance of the new development becomes apparent.

It is stated to be the policy of the Standard of New Jersey to license the use of the process to other refiners on generous terms as soon as the commercial plant has been in operation long enough to indicate what

Dr. R. T. Haslam of the Standard Oil Development Co. who was directly in charge of the hydrogenation research and development program

the costs and profits may be and how license royalties should be assessed.

Concerning the province of the hydrogenation process, the article in *The Lamp* goes on to say:

"During the past few years, the quality of crude oil available to the petroleum industry has changed materially. Formerly, the greater part of it was of a high quality, having a low sulfur content and containing a large proportion of white products such as gasoline and burning oils. Today, many of the crudes available to the industry are primarily fuel crudes or crudes of high asphalt, high sulfur content and having a much smaller fraction of natural white products.

"As a consequence, in producing the needed supplies of gasoline, kerosene and similar highly refined oils, it has been necessary to refine an amount of crude oil in excess of the economic market demand for the heavy fuel oil.

"IT WAS, therefore natural that the knowledge and technique developed in the liquefaction of coal should be employed in the solution of the problem of converting the surplus heavy fuel oil to lighter fuels. This research and development work has resulted in adapting the hydrogenation process to the treatment of fuel crudes or refinery residues, so that it is now possible to convert these asphaltic or high-sulfur crudes or residues to non-asphaltic, low-sulfur, light distillates.

"By minor changes in the process, the product may be either a straw-colored, low-sulfur gas oil or a water white gasoline, requiring little, if any, finishing treatment. The volume yield of gas oil or gasoline is practically 100 per cent; that is, by hydrogenation, 100 barrels of gas oil or gasoline can be produced from 100 barrels of fuel oil or refinery residues. The hydrogenation process prevents the formation of coke inherent to all cracking processes, reduces gas formation, and is virtually continuous.

"By the use of this process to meet the consumer demand for the lighter fuels, it should be unnecessary to produce heavy fuel oil in excess of the economic commercial requirements.

"In 1927, intensive laboratory work on hydrogenation applicable to the problems of the petroleum industry was begun at Baton Rouge in the research laboratory of the Standard Oil Co. of Louisiana. This work was followed by the erection of a small plant at the Baton Rouge refinery last year to demonstrate the process on a commercial scale and to determine certain engineering factors incapable of solution in the laboratory.

"Late last year, larger commercial units were authorized, the construction of which is now well under way.

"The uses which may be made of this process by the refining industry of the future and the products which may be made thereby are manifold. As the catalytic hydrogenation of petroleum products is controllable and flexible, it may be employed to produce widely differing products, depending on the character of the raw material available and the finished products required.

"It is confidently believed that this process marks a real forward step in the art of petroleum refining. For the first time, the refining industry has available to it a process for the constructive upbuilding of its products without a corresponding degradation of a portion thereof."

Exporters Sail to Confer Abroad On Gasoline Price Advance

CLEVELAND, July 9

EMISSARIES of the Export Petroleum Association are now in Europe or at sea bound for Europe, to confer with Sir Henri Deterding, managing director of the Royal Dutch-Shell companies, and representatives of the Anglo-Persian Oil Co., and Anglo-American Oil Co. about advancing the price of gasoline shipped from the United States.

R. C. Holmes, president, The Texas Corp., who heads the association's committee, sailed early last week and R. D. Matthews, vice-president, Union Oil Co. of California, is already in Europe. The other five committee members who sailed July 7 are: J. A. Moffett, vice-president, Standard Oil Co. of New Jersey; George P. Whaley, president, Vacuum Oil Co.; Howard Cole, Standard Oil Co. of New York; W. D. Anderson, Atlantic Refining Co., and L. B. Stanford, Sinclair Refining Co.

Most of the members of the export association are understood to favor a 1-cent advance in the export price of gasoline but the Shell Union Oil Corp., acting under instructions from Sir Henri, and possibly one or two other members of the association are said to oppose the increase.

This committee of seven will study the European gasoline market in an effort to ascertain whether an increase in the export price in the United States is warranted. Their findings and the results of conferences with the European petroleum distributors will be reported back to the association's vice-president and general manager in New York, Gilbert H. Montague. The committee itself has no power to increase the price. There must be unanimous consent of the members of the association to increase any price. This is a provision of the association's charter.

The association has issued no statement concerning the European price situation but it is understood that gasoline from Roumanian, Russian and other Near Eastern petroleum markets is a sufficient factor to make some exporters from the United States and the European distributors hesitant about advancing the American export price.

Sir Henri Deterding is understood to be the staunchest opponent of any price advance and it is likely that the committee of seven will endeavor to convince him that world market conditions warrant an increase in the association's price.

The differences in price ideas have led in recent weeks to reports of internal dissension in the association but a denial that a rift impended was issued by Mr. Montague following a meeting of the association's directors in New York June 27.

Because Mr. Holmes is also chairman of the American Petroleum Institute's committee on world production and consumption of crude oil, there were rumors in New York late last week that crude production would be the subject of conferences by him, Sir Henri, and Sir John Cadman of the Anglo-Persian while Mr. Holmes is in Europe. These reports were met with assertions by other members of the A.P.I. committee that they knew of no such contemplated conferences and did not believe such would be held.

Last summer a production conference was held in Scotland by Sir Henri and Sir John with Walter C. Teagle, president, Standard Oil Co. (N. J.), and later Sir Henri came to the United States where further discussions were held. Sir John came in December and addressed the A.P.I. at its Chicago meeting in behalf of more orderly development of the world's petroleum resources.

Wilbur Answers Permit Suit

(By Telegraph)

WASHINGTON, July 8.—Secretary Wilbur today filed a formal answer to the suit of Ethel McLenna in the matter of prospecting permit on public land in California. It was formal, asserting that the law is permissive and not mandatory in the issuance of permits to prospect.

One-Stops Bring New Selling

Outside Salesmen, Service Managers and New Merchandising Methods Found Necessary to Build Up Enough Business to Carry High Station Investment and Operating Costs

ONE-STOP service stations, as competition increases through increase in the number of such marketing units, are bringing into the merchandising of gasoline, oils and other automobile necessities some methods of selling that have been little used by our industry, and some practices that are frowned upon in our code of marketing practices.

Probably foremost among the innovations are the station and outside salesmen. The station salesman is what stock brokers call a customer's man. His work consists of forming contacts with motorists who come into the station and of seeing that sales are pushed for all departments of the station.

The outside salesman sells tires, batteries, and other articles the station may desire to push.

Another person who has not been found around most oil company stations is the service manager whose duty it is to see that all work is done properly and that delivery of a customer's car is made at the time promised.

A practice which many oil companies do not approve but which is being used by some super-service station operators, is the marking down or special sale of oil or gasoline as a trade puller.

Competition among one-stop stations is already keen and such stations have one or more salesmen out getting new business and maintaining contacts with old customers.

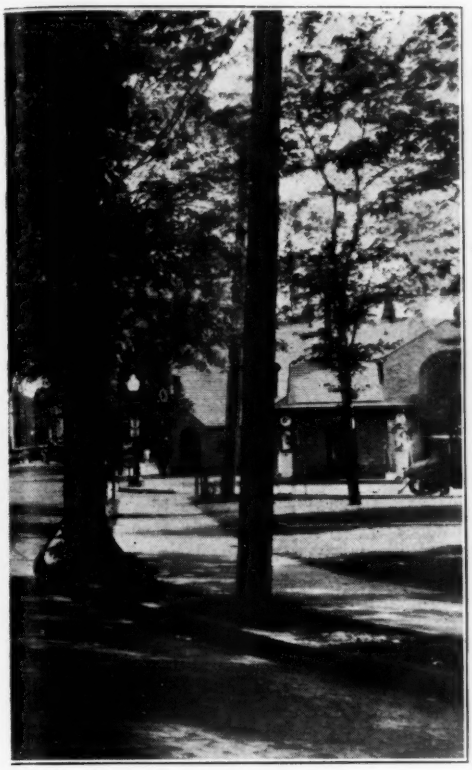
The tire dealers who have entered the one-stop station business, more than any other one class of merchants that serve the automotive trade, are finding they cannot depend entirely on the casual motorist who comes into their stations for gasoline and oil to keep their volume of tire and battery sales to a height required by their large investment in the station and its equipment. They are hiring salesmen who gather in their largest volume of trade. They also are using advertising and some are granting preferential prices on gasoline and oil.

Some of the stations do find that gasoline and oil form the best part of their businesses but the casual customer is predominantly a passenger car owner and the passenger car trade is only a part of the tire business. The most profitable sales in the tire end of the one-stop station are the commercial accounts and a salesman is needed to corral the commercial tire account just as the oil jobber or refiner uses a salesman to corral the commercial gasoline and oil accounts.

There are stations that have a battery salesman and many have floor or yard salesmen whose duty it is to see that the customer who comes in for one service is also sold other goods or services if he needs them.

INTENSIVE salesmanship becomes more important as the number of super-service stations increases, and they are increasing at a rapid rate in some cities. At Cleveland avenue N.W. and 9th street, Canton, are three super-service stations. The Texas Co. is building, one block away, a station where gasoline, oil, lubrication and car washing may be obtained. Two blocks away another super-service station is being erected by the Canton dealer of the United States Tire & Rubber Co.

The three stations at Cleveland and 9th illustrate what sales executives of some of the major oil companies told NATIONAL PETROLEUM NEWS a week



Super Service Corner, Canton, O. Here are three one-stop service stations at Cleveland avenue N.W. and 9th street. In the left foreground is the storeroom of Heingartner & Gill, Inc., station. On the far corner, center, is the Ziegler Tire & Supply Co. station, and at the right far corner is the General Tire Sales, Inc., station. Fourth corner is occupied by an old mansion which may be purchased for around $200,000, it is said, if any tire or oil company feels motorists will not be adequately cared for at this point

—there is danger of overbuilding.

The stations are those of the Ziegler Tire & Supply Co., Firestone dealer; Heingartner & Gill, Inc., Seiberling tire dealer, and General Tire Sales, Inc., General Tire dealer. Each has salesmen working outside the stations to stimulate sales of tires, batteries and other goods carried.

The following paragraphs tell in general how these companies operate and the scope of their set-ups:

Ziegler is the oldest of the three stations and one of four tire outlets this company has in Canton. Three of these outlets are one-stop stations where the motorist may get gasoline, oil, lubrication service, batteries, as well as tires. The fourth station is its tire headquarters where it handles its commercial work and major repairs.

Ziegler is an independent Firestone dealer. The company, which was formed in 1919, has had outstanding $50,000 of $100 common stock of an authorized $100,000. It is now marketing $500,000 of $100 7 per cent preferred stock, proceeds from which are to clear it of debts incurred in building its third and fourth stations.

THE company did not begin to sell gasoline and oil until the Cleveland and 9th station was opened in May, 1927. What its gallonage is the company will not state but in its preferred stock prospectus it says gasoline sales in the last three months of 1928 were 124 per cent larger than sales in the corresponding time of 1927, and that first quarter, 1929, gallonage was 157 per cent larger than the first quarter gallonage of 1928 and oil volume increased 112 per cent.

At present the company is selling $10 coupon books for gasoline at $9.15 to its contract and charge customers. This represents a reduction of 2 cents a gallon. O. G. Ziegler, president of the company, said he discontinued coupon books last December but that discounts granted by other gasoline dealers caused him to resume the coupon books. He said his gasoline and oil gallonage at the Cleveland and 9th station had not fallen off although Heingartner & Gill opened its station early this year and the General Tire Store opened its place a few weeks ago. Ziegler has steadily increased its tire business, according to the stock prospectus. Ziegler buys its gasoline in the tank wagon market from Freedom Oil Works Co.

"The competition here hasn't hurt us a bit," said O. G. Ziegler, who added that people liked to patronize home enterprise and he was the only Independent on the corner. The other competitors insisted that they were not being assisted financially by tire manufacturers, so the situation in regard to ownership is probably like that of the Ziegler company, which is reputed in Canton to be 51 per cent owned by the Firestone Tire & Rubber Co., which is denied at the Firestone offices in Akron.

The General Tire Sales, which is owned by J. R. Lotze, was said by a competitor to be doing the largest tire business in Canton. Its gross tire sales were approximately $150,000 last year. If the national average for tire sales holds good in Canton, General did almost one-sixth of the tire business in Canton which has 26,000 automobiles. The national average for tire sales is two tires a year per registered vehicle, or between $37 and $38 when computed in money.

Its station, the newest of the three on super-service corner, is in the English cottage style of architecture. It is built of bronze brick with terra cotta shingles. It is an L-shaped building on a lot 75 x 150 feet; the 75-foot frontage is on the main street, Cleveland avenue. There is a small house for the gasoline and oil salesman near the intersection of the two streets.

The General has leased the gasoline and oil part of the business to the Pennzoil Co., which has a distributing branch in Canton. Pennzoil has pits at the street end of the short leg of the L.

THE plant represents an investment of approximately $75,000 without equipment. Its business consists of tire sales and repairs, brake testing and adjusting, and wheel aligning. The company does not today sell or service batteries and has no car washing department. The brake service, which is new, does a gross business of about $60 a day although it and the wheel aligning are new with the company. Two men are employed on brakes, one on wheel aligning and five in the tire department. These men make $35 to $40 a week apiece, which brings the labor cost to approximately $300 a week.

There are three salesmen working in Canton. The owner, his brother, Louis Lotze, who is service manager, and a bookkeeper complete the station's personnel.

The station has three service trucks and one motorcycle. The tire repair men operate these trucks whenever deliveries are to be made, road calls answered, or other work done requiring transportation. The trucks are light.

The backbone of this station's tire business is the truck trade. However, it does a considerable business in replacements for new cars, a feature of its business which has been built up during its 10 years as General dealer in Canton. For this business gasoline and oil cannot form a contact because trucks usually are supplied with gasoline and oil at their own garages and because the owners of new cars usually have more than enough gasoline to drive from the car dealer's place of business or their homes to the General's station to have the original equipment tires replaced while they still can get the wholesale price for them.

Rubber mill supplies form an important part of the business of the Heingartner & Gill station and the company does a large wholesale and

retail business in all types of rubber goods, even selling raincoats, boots, and swimming caps.

The company's station is built on a lot 128 feet square on what oil companies regard as the best corner of the four, the far corner on the right as one drives away from the business district.

The station is L-shaped with a 32 x 65-foot salesroom which is used for the tires, batteries, rubber mill supplies, automobile accessories, and apparel. The large size of the salesroom permits a good display of the merchandise both on shelves and in cases and racks.

The real estate, building and equipment represents an outlay of approximately $90,000, said H. H. Heingartner, one of the owners.

The company itself has tire repair, lubricating, battery, and car washing services. Space at one end of a leg of the building is leased to a brake service company.

The company has two men on gasoline and oil who also sell automobile needs. It has three service men who work on tires, batteries or lubrication, wherever there is need for the work. These men are paid salaries. One man is on car washing. He works on a commission, getting half the gross revenue from that department.

The tire market is not so rosy, according to Mr. Heingartner, who says the tire industry must be stabilized from the manufacturers' standpoint. He said the average markup on tires is now only about 10 per cent which is too small for any retail business.

The company distributes Seiberling tires in Stark county. It also jobs considerable rubber goods for Goodrich and Goodyear, but does not handle their tires.

Mr. Heingartner and W. J. Gill, the other owner, alternate in the station and selling outside to the mill and retail trade. Mr. Gill's son is selling on the outside all the time.

The company maintains one tire service truck and one delivery truck for both tire and mill trade.

Besides the mechanical rubber goods the company also sells factories valves, hoists and fire extinguishers. It carries a stock of quart and 2½-gallon extinguishers in its storeroom.

Mr. Heingartner said gasoline sales were good. The pumps are easily accessible from Cleveland avenue, the main thoroughfare. The gasoline is bought at tank wagon from the Sun Oil Co. distributor. This business was begun the first of this year when the station was opened. Before then it had a storeroom in the retail business district.

Retail sale of sundries was better in the old location, Mr. Heingartner said, because the store was passed by many pedestrians. Few persons pass the station afoot and it is not so easy to get motorists calling for gasoline into the salesroom.

Stocks of tires are carried by General Tire Sales and Heingartner & Gill at their stations on super-service corner but the Ziegler company carries its stock at its downtown location. A few sizes are carried at the three one-stop stations Ziegler has away from the main retail district of Canton.

Reports Progress in Fight On Refinery Corrosion

MANY manufacturers of refinery equipment and supplies are taking considerable notice of the work of the committee on corrosion of the American Petroleum Institute and are making an honest effort to meet the needs of the oil industry, in the opinion of H. F. Perkins, Gulf Refining Co., chairman of the committee on refinery and marine corrosion.

Mr. Perkins states that some progress has been made by the committee in the six months since the meeting of the American Petroleum Institute in Chicago. A mid-year survey of the corrosion committee's work is given to NATIONAL PETROLEUM NEWS by Mr. Perkins as follows:

"The corrosion committee of the American Petroleum Institute has asked that all oil companies interested in the corrosion problem appoint contact men with whom the committee could correspond. The purpose of the committee is to collect experience data and to keep the industry informed of the progress being made in the art of reducing corrosion losses.

"Work of the corrosion committee has advanced along three distinct lines. First, a ground work was formed through the sending in of hundreds of corrosion records based on the common, every day experience of oil companies, and in many cases the methods tried for reducing corrosion have been listed. The more recent records show more organized effort along this line and much improvement in conditions.

"Second, systematic attack of the problem is being made and orderly duplicate tests and trials are going on, which, with the data in hand and the collective experience of others will result in a compilation of facts that will offset the old more or less superstitious ideas about corrosion and allow work to proceed intelligently.

"Third, the wholesale trial of every method and material suggested is being gradually reduced. Through the information gathered, those things that are obviously uneconomical are being rejected and only methods that show promise will be concentrated on for further eliminations.

"Contact men are usually in direct touch with the executive departments of their company and, as they receive information in direct proportion to that which they furnish, the individual companies who are interested are able to benefit from the broad experience collected by the corrosion committee. The committee is in receipt of complimentary letters showing just how these benefits apply, and are thereby encouraged in their work.

"Concentrated work has been undertaken on protection of pipe lines, a study of oil tank vessel corrosion, the standing of various metal alloys, corrosive action in condensers, the practicability of inside coatings for oil tanks, valves of various types, metal coatings and the problems in connection with cracking of oils.

"The work on some of these subjects is necessarily slow and some of it is in it's infancy but, much progress is being made on a few of the subjects and the educational work has been of tremendous advantage.

"Manufacturers of corrosion resisting material and protection, through cooperation with the committee, are becoming more intimate with the problems so are thereby able to work more intelligently and, as a result, efforts are continually being applied towards the production of materials that will meet the economic needs of the oil industry in construction of apparatus to resist corrosion.

"It is not hard to realize that great savings have already been made through the work of the corrosion committee, due in part to its coordination with other corrosion committees and the United States Bureau of Standards, and to its cooperation with manufacturers."

A growing consumer of petroleum products is the Irish Free State which in 1928 imported the unprecedented total of 25,171,864 gallons of gasoline, compared with 19,363,772 gallons in 1927. The country imported 14,465,851 gallons of kerosene in 1928, compared with 16,160,572 gallons in 1927, the increasing use of electricity for lighting being given as the reason for the decline.

The first stop made by the Continental Oil Co. executives on their 5,500-mile tour of inspection, which started July 2, was at the Sapulpa, Okla., refinery, where NATIONAL PETROLEUM NEWS met them with camera. As they stand, left to right, they are: E. C. Halsey, manager of service stations; H. B. Simcox, producing department; J. T. Sweeny, sales manager, Tulsa district; E. S. Karstedt, vice-president in charge of marketing; Emerson Smith, publicity; L. P. Carpenter, production; Tom Kenney, pipe line; G. C. Clark, geological; S. J. Trilling, secretary to President Moran; O. B. Lloyd, sales department; J. C. Curtis, sales; Baird H. Markham, comptroller; Harry Moreland, pipe line; J. M. Hollister, manager plants and equipment, marketing department; E. O. Bennett, chief engineer; D. J. Moran, president; W. H. Ferguson, vice-president; Walter Miller, vice-president; K. W. Shimeall, superintendent, Sapulpa plant and C. O. Melberg, resident engineer, Sapulpa plant.

E. T. Wilson, chairman of the board; S. H. Keoughan, chairman of the executive committee and E. J. Nicklos, vice president, were to join the party later.

A.P.I. Report Shows Crude Run Cut at U. S. Refineries

By Telegraph
NEW YORK, July 9

REFINERS operating 89.9 per cent of the total refining capacity of the U. S. reported to the American Petroleum Institute on their operations for the week ended July 6. This compares with reports from 90.0 per cent the previous week.

Although not strictly comparable the trend of operations may be judged closely by examining statements for the two weeks.

Crude charges to stills at all plants dropped 335,400 barrels as compared with the week ended June 29. This is a reduction of 47,900 barrels daily average. Small increases were made in crude runs at plants in California and on the Texas gulf coast. All other groups showed smaller runs.

Reporting plants were operating at 86.3 per cent of their capacity during the week as compared with 87.8 per cent of their capacity the previous week. Texas and California groups operated at a higher rate by this test also.

Gasoline stocks at all plants were reduced 907,000 barrels during the week. On July 6 total stocks of reporting plants were 39,140,000 barrels as compared with 40,047,000 barrels on June 29.

Small increases in gasoline stocks were reported by California, Appalachian and Indiana-Illinois groups. Decreases were reported in all other fields.

Stocks of fuel and gas oil increased 479,000 barrels at all reporting plants to 139,950,000 barrels. On June 29 stocks of these oils totaled 139,471,000 barrels. Heavy oil stocks were reduced in Oklahoma-Kansas and Appalachian fields. All others reported increases.

American Petroleum Institute report of Refinery Operations in the United States for the week ended July 6.

(All figures in barrels.)

District	Per Cent of Capacity Reporting	Crude Run to Stills	Per Cent of Capacity Operated	Gasoline Stocks	Gas & Fuel Oil Stocks
East Coast.....	100.0	3,413,700	86.3	6,419,000	10,254,000
Appalachian.....	82.2	623,600	92.6	1,203,000	1,028,000
Ind.-Ill.-Ky.....	96.2	2,137,700	96.5	6,820,000	3,357,000
Okla.-Kans.-Mo....	69.5	1,610,900	78.1	3,880,000	3,945,000
Texas.....	84.4	3,666,400	91.6	4,939,000	12,121,000
La.-Ark.....	86.7	1,209,700	78.6	2,135,000	5,542,000
Rocky Mountain...	92.2	462,100	54.5	1,858,000	598,000
California.....	97.2	5,003,500	87.5	11,886,000	103,105,000
Total U. S.....	89.9	18,127,600	86.3	39,140,000	139,950,000
Texas (Gulf Coast)	96.0	2,899,200	96.1	4,189,000	8,500,000
La. (Gulf Coast)...	97.5	901,900	83.1	1,958,000	4,602,000

Texas Co. Gets Good Lea County Well

By Telegraph

HOUSTON, July 8.—The Texas Co.'s second good completion in Lea County, New Mexico, was reported in telegraphic advices July 8. It's No. 1 Sheppard in 6-26S-37E came in making initial production of 70 barrels an hour. Depth was below 3240 feet. The well is northwest of the Texas Co.'s original Rhodes oil discovery and northeast of the Eaves Gasser of Marland Production Co. Production has increased to 1178 barrels in the Texas Co.'s No. 1 Lynch as old completion in 34-20S-34E.

Outside Competition Cutting Sales Of Oklahoma-Kansas Refiners

By Allen S. James
N. P. N. STAFF WRITER

TULSA, July 6

THE combination of a severe winter, lack of export outlet and a restricted marketing territory has cut into the gasoline business of Oklahoma and Kansas refiners during the first half of 1929.

Shipments of gasoline from refineries reporting weekly to NATIONAL PETROLEUM NEWS were actually below those reported for the first 26 weeks of 1928 in spite of the substantial increase in actual consumption throughout the country.

At the end of the first six months this group of manufacturers was technically 51,000,000 gallons worse off than at the end of June, 1928. A year ago the refiners had shipped 3,000,000 gallons more than they manufactured. This year production in the first 26 weeks has been 48,000,000 gallons greater than sales.

It will be recalled that the first part of 1928 was an open winter and gasoline demand was good. The first part of 1929 was composed of subnormal weather.

In the first half of 1928 heavy export buying was done in the Mid-Continent. This year export buying has been an exceedingly minor factor. Many of the refiners attribute the present situation primarily to lack of export buying.

Mid-Continent gasoline was bought extensively for shipment to many places outside the normal marketing territory during the peak of demand in 1928. This year the market for Oklahoma and Kansas refiners especially has been drastically restricted because of intrusion of West Texas.

North Texas has been a strong competitor because of the lack of export business in that district. Louisiana and Arkansas refiners have taken part of the business because of their high rate of production as compared with gasoline demand in the differential territory in the southeastern states. The inland movement from Gulf and seaboard ports of large quantities of California gasoline has been another difficulty.

Oklahoma and Kansas refiners have recognized that gasoline from these competing fields was going to find an outlet at some price. If they had determined to hold all of their 1928 business and seek additional outlets they would have been forced to bid for the outlet at cumulatively lower prices. They have chosen the alternative of doing less business at a more satisfactory price.

The competitive situation and the weather conditions have been such as to make it difficult for refiners in the two states to gauge their output accurately. Throughout the period hopes have been strong that inquiries and sales would pick up. As a result runs have been kept too high.

Normally gasoline stocks in the Mid-Continent begin to decline in April and are consistently drawn on until the close of the season, except for a few bad weeks. This year stocks have shown a tendency to rise even in May and June.

This situation is shown in a comparison of cumulative production and shipments for the first half of 1928 and of 1929. The figures used were taken from the compilations of weekly operations reports gathered by NATIONAL PETROLEUM NEWS in the Mid-Continent. It was impossible to make an accurate comparison of the entire field since a new group—West Texas—was added at the first of the year, and a few plants which formerly had been listed under the North and Central Texas groups were placed in

Oklahoma-Kansas Refinery Operations for First Half of This Year Compared with Same Period in 1928

(Cumulative Crude Runs, Gasoline Production and Shipments Figures Based on Weekly Operations Reports to NATIONAL PETROLEUM NEWS.)

	Cumulative Crude Runs			Cumulative Gasoline Production			Cumulative Gasoline Shipments		
	1928	1929	Percent of Increase or Decrease	1928	1929	Percent of Increase or Decrease	1928	1929	Percent of Increase or Decrease
1st Week	132,726	152,718	+15.0	20,300,000	23,670,000	+16.6	20,047,000	24,080,000	+20.1
2nd Week	279,174	311,570	+11.6	42,051,000	49,519,000	+17.8	42,958,000	47,818,000	+11.3
3rd Week	429,670	478,818	+11.4	65,324,000	76,645,000	+17.3	64,240,000	68,016,000	+5.9
4th Week	587,296	644,542	+9.7	88,672,000	102,166,000	+15.2	85,948,000	88,218,000	+2.6
5th Week	746,554	800,966	+7.3	112,057,000	128,683,000	+14.8	107,379,000	107,441,000	+0.1
6th Week	902,820	950,305	+5.6	135,465,000	153,728,000	+13.5	131,286,000	127,364,000	—3.0
7th Week	1,063,126	1,101,150	+3.6	159,952,000	178,043,000	+11.3	152,673,000	145,828,000	—4.5
8th Week	1,222,527	1,260,646	+3.1	184,865,000	203,612,000	+10.2	175,326,000	164,823,000	—6.0
9th Week	1,379,856	1,411,778	+2.3	208,495,000	227,925,000	+9.3	198,591,000	185,144,000	—6.8
10th Week	1,540,965	1,570,209	+1.9	233,374,000	252,556,000	+8.2	220,682,000	208,135,000	—5.7
11th Week	1,711,496	1,738,350	+1.6	259,500,000	279,032,000	+7.5	245,464,000	232,507,000	—5.3
12th Week	1,884,768	1,912,632	+1.5	287,011,000	304,875,000	+5.9	270,329,000	258,919,000	—4.2
13th Week	2,043,492	2,090,472	+2.3	313,163,000	332,607,000	+6.2	296,408,000	286,203,000	—3.4
14th Week	2,208,839	2,265,604	+2.6	337,330,000	360,011,000	+6.7	321,865,000	314,083,000	—2.4
15th Week	2,382,224	2,450,641	+2.9	364,574,000	388,468,000	+6.6	345,883,000	341,973,000	—1.1
16th Week	2,559,253	2,627,759	+2.7	392,699,000	415,912,000	+5.9	372,023,000	368,235,000	—1.3
17th Week	2,728,664	2,803,027	+2.7	419,067,000	443,845,000	+5.9	399,910,000	394,694,000	—1.3
18th Week	2,892,601	2,971,682	+2.7	444,072,000	470,572,000	+6.0	426,872,000	421,778,000	—1.2
19th Week	3,062,907	3,162,812	+3.3	470,809,000	499,669,000	+6.1	457,283,000	449,130,000	—1.8
20th Week	3,248,623	3,339,172	+2.8	498,942,000	527,287,000	+5.7	490,641,000	477,464,000	—2.7
21st Week	3,418,166	3,519,647	+3.0	525,960,000	557,320,000	+6.0	521,670,000	509,234,000	—2.4
22nd Week	3,598,352	3,717,101	+3.3	554,079,000	587,899,000	+6.1	552,682,000	543,657,000	—1.6
23rd Week	3,786,619	3,908,954	+3.3	582,562,000	618,522,000	+6.2	581,688,000	571,927,000	—1.7
24th Week	3,969,140	4,082,105	+2.9	612,513,000	647,009,000	+5.6	609,995,000	599,932,000	—1.6
25th Week	4,148,996	4,256,562	+2.6	641,176,000	674,738,000	+5.2	641,261,000	627,063,000	—2.2
26th Week	4,319,358	4,450,004	+3.0	666,470,000	704,934,000	+5.8	669,433,000	656,615,000	—1.9

the West Texas listing. Figures for North and Central Texas accordingly would not be comparable for the two periods.

Cumulative crude runs, together with gasoline production and shipments for the two periods under discussion are shown in an accompanying table. A discussion of the situation for the first 15 weeks of each year was carried in the April 24 issue of NATIONAL PETROLEUM NEWS, page 35.

It will be observed that at the end of the fifteenth week the two refining groups had cut crude oil charges down from an increase of 15 per cent the first week to one of 2.9 per cent. Gasoline production had been reduced from an increase of 16.6 per cent to one of 6.6 per cent, gasoline shipments, which had started the year with an increase of 20.1 per cent, had dropped to a decrease of 6.8 per cent at the end of the ninth week, but had moved back almost on a balance, the difference the fifteenth week amounting to a decrease of 1.1 per cent.

Since the fifteenth week the refiners have kept crude runs in the neighborhood of a 3 per cent increase. Gasoline production hovered around 5.5 to 6 per cent increase while shipments showed a consistent percentage decrease ranging from 1.2 to 2.7.

Comparing 1928 gasoline production column with that of shipments it will be observed that cumulative production kept ahead of shipments until the twenty-fifth week when shipments moved into the lead. The twenty-fifth week in 1928 was that ending on June 22. The cumulative production figure for that week was 641,176,000 gallons while cumulative shipments figure was 641,261,000 gallons.

It would be needless to list the cumulative production and shipments for the remainder of 1928 since there is no comparative figures for 1929, but shipments kept ahead of production from the twenty-fifth week that year until the end of the fifty-first week, which was the week ended December 21. The cumulative production figure for that week was 1,380,100,000 gallons and cumulative shipments 1,383,586,000 gallons. The last week of the year the figures were: production 1,405,082,000 gallons; shipments 1,404,878,000 gallons. On June 29, 1929 Kansas refiners held gasoline stocks of 14,666,000 gallons and Oklahoma refiners reporting had stocks of 39,725,000 gallons, the total for the two districts being 54,391,000 gallons.

Stocks at Kansas refineries reporting operations totaled 31,152,000 gallons on June 28, 1929, an increase over the stocks of a year ago of 16,486,000 gallons or 112.4 per cent. Stocks June 28, this year at Oklahoma refineries totaled 74,725,000 gallons, an increase of 35,000,000 gallons or 88.1 per cent. Total gasoline stocks for the two districts this year was 105,877,000 gallons, an increase of 94.6 per cent.

If the refiners in Oklahoma and Kansas close the year in as good a position as they did in 1928, during the remaining 26 weeks their shipments will have to average each week at least 1,980,000 gallons more than production. That means they will have to ship approximately 250 cars more of gasoline each week than they produce.

Gasoline production for the four weeks of June averaged 29,259,000 gallons a week. Curtailment of crude runs at this time undoubtedly would help considerably but even with a 25 per cent reduction in crude runs it would require approximately seven weeks to swing the situation to an even keel unless some other factors enter the market.

The increased gasoline stocks apparently are fairly evenly distributed among the Oklahoma and Kansas refiners as far as increases generally are concerned. One refiner, however, on June 29 this year had stocks 409 per cent greater than on June 28, 1928. Another's stock increase amounted to 127 per cent. Others ranged from very small increases up to 40 to 60 per cent.

It will be recalled that after the July 4 holiday in 1928 the gasoline market swung upward sharply and demand was excellent until along in October. The export buying prior to July 4 had played its part in keeping stocks from accumulating.

It was too soon after July 4 when this was written to determine the trend of the market. Many refiners anticipated a substantial increase in demand which would draw gasolines from storage. They counted on the vacation periods of July and August to stimulate jobber buying. As contrasted with the expectations of these refiners are those of others who are known to have sold some quantities of gasoline for shipments over July at prices considerably under the prevailing spot market.

Crude Sales to West Texas Refiners Are Reduced

TULSA, July 6

THE plant of the Amarillo Producing & Refining Co. at Pyote, Texas, was shut down soon after July 1. Its crude supply, which the company had bought on contract, has been resold to the Pecos Valley Refining Co. of Pyote, according to information received here.

The closing of the plant was considered in many quarters as the first of a series of shut-downs which may occur among the smaller plants in West Texas.

Should these shut-downs occur several factors will have contributed. The advance in crude oil prices in West Texas late in May was a severe blow to some of the refiners. The advance increased their manufacturing costs more than 2 cents a gallon, with gasolines having to bear virtually all the increase.* Gasoline prices at the refinery have advanced to date only slightly more than 1 cent a gallon. The result has been a steady loss for a few of the refiners since the crude advance.

Crude oil sales to some of the refiners were reported to have been curtailed around 50 per cent since June 26. This was caused by the purchase by the Marland Refining Co., now the Continental Oil Co., of the Texon Oil & Land Co.

The Texon company was one of the major suppliers of crude to the smaller refiners in West Texas. It bought a part of the crude it supplied from the Southern Crude Oil Purchasing Co. It was understood here that, after the purchase of the Texon company, the Southern company notified the Marland company that it would have no more crude to sell after June 26. The notification was made April 26 to be effective 60 days from date.

The Gulf Pipe Line Co., meanwhile has increased its line from West Texas, and other pipe lines, including the Humble line, have been taking a large percentage of the crude out of the field. The bulk of the crude is controlled by major companies who apparently want the production for their own refineries or subsidiary companies.

Reports from West Texas indicate there has been considerable shopping around for crude on the part of the smaller refiners, and in at least one instance, on the part of one of the larger of the new companies. The crude sold to the Pecos Valley Refining Co. was understood to be bringing the Amarillo Producing & Refining Co. a small premium. Another small refiner, who was fortunate enough to have his own pipe line connection, has been shipping via tank car about 1500 barrels a day to other plants.

The shopping for crude may result in the situation adjusting itself with no more shut-downs. If the situation does not change in the next few weeks, however, the prediction in many quarters is that at least two or three more plants will be forced to shut down permanently, or operate only at intervals.

*NATIONAL PETROLEUM NEWS, May 29, 1929, page 32-F.

Commission Investigates Waste Of Gas at Oklahoma City

TULSA, July 6

WITH the state corporation commission in the position of making a ruling that will operate as a precedent, the case now before it respecting the Sinclair Oil & Gas Co.-Amerada Petroleum Corp. No. 1 Kinter well in the Oklahoma City pool is one of the most important in the many years this commission has had to do with enforcement of conservation laws.

The well, in the SE SE of 24-11-3W, is something of a freak, producing around 65 million feet of gas and upward of 2000 barrels of petroleum of 67 A.P.I. gravity. The petroleum, variously defined by the witnesses who appeared before the commission on July 3 as gasoline, crude oil and "fluid," is water white, looks like gasoline but is more "oily" and is not so lively when exposed to sunlight as is natural gasoline. Some argue that it is a crude oil of peculiar characteristics while others maintain it is merely a condensate in the gas zone.

Oklahoma has rather a stern law forbidding the escape of gas in commercial quantity into the atmosphere and this law has been enforced by the commission many times. There are, however, certain factors to be presented by the defense, some of them indicated in the July 3 hearing at which time the defendants called no witnesses but cross questioned those who were put on the stand by the commission.

The complainant in the case is Conservation Officer Vaughn, who has charge of the Oklahoma City district. The Sinclair company drilled the well on acreage originally held by Amerada in which Sinclair bought an interest. Defense is being principally conducted by Sinclair.

Several witnesses were called by the commission, among them being Wirt Franklin, who is operating in the field; M. J. Kirwin, chief engineer of the Indian Territory Illuminating Oil Co. who is chairman of a committee of five selected by operators to make an engineering report on development and production methods.

Mr. Franklin said that he believed the well should be shut in and the gas conserved, holding that there is communication between the zone from which it is producing and the "big pay" of the field, some 200 feet deeper stratigraphically.

Mr. Kirwin also believed that dissipation of the energy was a bad thing for the field and favored some control method which would reduce the present gas/oil ratio, then running in excess of 40,000 cubic feet of gas per barrel of oil. On questioning by Mr. Capshaw of the commission, Mr. Kirwin said he thought 10,000 feet of gas per barrel of oil would be liberal.

T. B. Slick, independent operator, said that from a selfish standpoint he would agree that the well should be "killed" but as a matter of justice to the defendant company the commission should allow it to produce what it will regardless of the gas that is going into the air.

The commission inquired into the contention of the Sinclair that the connections on the well and the casing are of such nature that it would be hazardous to shut it in. General opinion of the witnesses was that the well might easily blow off the fittings under the high pressure that would accumulate. That might result not only in the loss of the well, which has cost some $120,000, but might be a menace to the area, as a fire hazard would thus be created.

The commission adjourned the hearing until July 8 when the Sinclair company was due to present its defense.

* * *

(By Telegraph)

OKLAHOMA CITY, July 8.—On resuming the hearing Monday President R. A. Griffith of the Sinclair Oil & Gas Co., took the stand and said that his company looks at the matter from an economic standpoint. The well is yielding a revenue of some $3000 per day and that his company cannot realize anything from the gas, while to shut off the gas and deepen to the big pay of the field would be unwise as there is no assurance that production will be found at this location.

Further he said the field will be better off if the gas pressure is relieved as no well has yet been completed in the field without a fishing job at the top of the sand. Mr. Griffith asserted that the gas will be wasted through other wells to be completed whether the Sinclair well does it or not. He pointed out that the gas conservation law in Oklahoma has heretofore been enforced on dry gas wells only and asserted that this well is to be regarded as an oil well the proof of which is seen in the drop in gravity of the fluid from around 84 to the present 64.

Later a company chemist testified that his analysis of the oil shows it to possess characteristics of crude oil rather than gasoline. Mr. Griffith said his company has an investment of about one quarter of a million dollars in wells and lease including $100,000 paid to the Amerada Petroleum for a half interest in the lease.

Other witnesses heard were A. W. Leonard, pioneer gas man of Tulsa; J. T. King of the Kingwood Oil Co.; Glen Harroun, Sinclair superintendent; H. L. Breggs, general manager of the Coline Oil Corp. and J. J. Frommer, Mid-Kansas Oil & Gas Co. superintendent. They testified as to practices in this and other fields.

Wirt Franklin, who testified at the hearing last Wednesday asked a number of questions of the witnesses to bring out the point that a great waste of energy is occurring and sought to develop the opinion of Mr. Leonard that if the gas in the Oklahoma City pool is conserved capital will be attracted to utilize the gas in an orderly manner. The commission made no decision and it appeared probable that several days will pass before a decision is reached.

Announce Big Gas Line From Panhandle

TULSA, July 6.—In an authorized statement which reached Tulsa July 5, confirmation was given to previous rumors that a major gas pipe line project from the Panhandle field of Texas to Nebraska and Iowa points is planned by several large oil and gas companies.

The participating companies are The Texas Co., which will have a 35 per cent interest in the project; Skelly Oil Co., 30 per cent; Phillips Petroleum Co., 25 per cent and Columbia Carbon Co., 10 per cent.

The Central States Natural Gas Co. has been organized under the laws of Delaware with the following directors: R. C. Holmes and R. Ogarrio, The Texas Co.; Frank Phillips, Phillips Petroleum Co.; W. G. Skelly, Skelly Oil Co. and Reid L. Carr, secretary of the Columbia Carbon Co. Mr. Carr is acting as spokesman for the group. He is a member of the law firm of Clark, Carr & Ellis, 39 Broadway, New York.

Full particulars of the company's plans have not been revealed. It is reported that the line will be at least 22 inch and will pass through Omaha and Council Bluffs. It is also reported that it may go as far as Chicago, there to sell gas to the Insull interests for distribution. The new company will acquire natural gas rights and existing wells on some 132,000 acres from the several companies participating.

RICHMOND, Va., July 8.—The Continental Oil Company, a Delaware corporation, has been granted a certificate of authority by the Virginia State corporation commission to prospect for and manufacture oils and minerals.

Drawing of Specifications Proposed for Committee D-2

CLEVELAND, July 8

TWO important actions featured the meeting of Committee D-2 on Petroleum Products and Lubricants held in connection with the annual meeting of the American Society for Testing Materials in Atlantic City, June 27.

One was the perfecting of plans which have been under consideration for some time for undertaking the preparation of specifications for certain petroleum products. The other was the recommending of changes in tentative methods for testing certain products.

Changes in the by-laws of the committee were adopted, these providing for the appointment of technical committees to prepare specifications on specific products. The changes, however, must first be confirmed by letter ballot.

In organizing these technical committees, attempt will be made to obtain adequate representation from all interested groups and, in the beginning at least, the members of a technical committee will not necessarily have to be members of Committee D-2 or of the American Society for Testing Materials.

This represents a new line of activity for Committee D-2, which hitherto has restricted itself largely to development of methods of testing. It is probable that one or more technical committees will be organized in the near future.

The Committee D-2 report, as adopted by the society, recommended important changes in the Tentative Method of Test for Sulfur in Naphthas and Illuminating Oils (D 90-26 T) and in the Tentative Method of Test for Precipitation Number of Lubricating Oils (D 91-21 T) and proposed a new Tentative Method of Test for the Determination of Expressible Oil and Moisture in Paraffin Waxes.

Minor tentative revisions of four standard methods also were recommended. These methods are:

Standard Method of Test for Viscosity of Petroleum Products and Lubricants (D 88-26).

Standard Method of Test for Distillation of Gasoline, Naphtha, Kerosene and Similar Petroleum Products (D 86-27).

Standard Method of Test for Water in Petroleum Products and Other Bituminous Materials (D 95-28).

Standard Method of Test for Carbon Residue of Petroleum Products (Conradson Carbon Residue), (D 189-28).

In the sulfur method, the apparatus and the procedure have been specified more closely in order that more uniform and more accurate results may be obtained. The title of the method also has been changed to "Tentative Method of Test for Sulfur in Motor Fuels, Naphthas and Illuminating Oils (Lamp Method)."

Dr. P. H. Conradson, former chief chemist of the Galena Signal Oil Co. at Franklin, Pa., and originator of the well-known carbon residue test, was the guest of honor at the annual dinner of Committee D-2. He was one of its earliest members. W. H. Fulweiler, of the U.G.I. in Philadelphia was toastmaster, and E. N. Hurlburt of the Taylor Instrument Companies, Rochester, N. Y., was chairman of the dinner committee.

The new method for Expressible Oil and Moisture in Paraffin Waxes represents a standardization of the well-known press method for this purpose.

The report also contains summaries of the activities of various sub-committees. That on the work of the sub-committee on crankcase dilution describes methods that are being investigated for determining the dilution of crankcase oil and presents comparative results obtained with them. It is probable that a new tentative method will result from this work.

A weakness of the Tentative Method of Test for Precipitation Number of Lubricating Oils (D 91-21 T) has been the lack of adequate standardization of the precipitation naphtha so that reproducible results could be obtained. This situation has been remedied through the work of Sub-Committee IX on Precipitation Number of the A.S.T.M. Committee D-2 on Petroleum Products and Lubricants. Dr. L. W. Parsons, of the Tide Water Oil Co., is chairman of the sub-committee.

The new specification for this naphtha, as contained in the report of Committee D-2 adopted by the society, is as follows:

Gravity, degrees A.P.I. at 60 F., 70 to 73.

Aniline Point, degrees Centigrade, 58 to 60.

Initial Boiling Point, A.S.T.M., not less than 122 F., (50 C).

Fifty Per Cent Point, A. S. T. M., 158 to 176 F., (70 to 80 C).

End Point, A.S.T.M., not more than 266 F., (130 C).

This differs from the former specification in the distillation temperatures and through the addition of an aniline point requirement. The aniline point is a measure of the aromatic hydrocarbons present in the naphtha, which have an important effect on the character of the results obtained by the naphtha in the precipitation test.

The aniline point determination is carried out as follows:

"Measure 10 cc. of the sample and 10 cc. of the aniline, (freshly distilled, free from aminothiophenes) into a large test tube fitted with a stirrer and a thermometer. Heat the mixture by means of a naked flame until it becomes homogeneous, and then allow to cool until it becomes turbid. Raise the temperature slightly and make a duplicate determination. Disregard any slight initial turbidity, taking the temperature when the solution becomes completely cloudy. If the aniline point is more than 10 C. above the room temperature, use another larger test tube to form an air jacket."

One distinct advantage of this new naphtha is that it can be produced from many different kinds of crudes. In general, naphthas prepared from Mid-Continent crude meet the required aniline point without special chemical treatment. If it does fall short of the desired figure by not more than 2 C., the specified limits can be reached by treatment with 10 per cent by volume of fuming sulfuric acid. Naphthas prepared from Pennsylvania crude give too high and those prepared from coastal crude give too low aniline points. The desired limits can be obtained by blending.

Dr. Parsons outlines the following procedure for preparing the new naphtha from Mid-Continent crude:

"A cut with a boiling range from 150 to 350 F. is taken from a continuous still operating on Mid-Continent crude. It is then charged to an experimental one-barrel still from which is obtained a large number of narrow cuts, the first being 10 gallons and the other cuts being one gallon each. The A.S.T.M. distillation is then performed on the first and last cut as a result of which an experimental blend is made up from selected cuts which is then submitted for tests. This experimental blend serves as a basis upon which the final blend is made up. The naphtha is then sweetened in order to pass the copper and doctor tests."

It is probable also that natural gasoline will provide a convenient source of this new naphtha merely through removal of the lighted constituents.

Tennessee Oil Men to Meet

NASHVILLE, July 8.—A meeting of the Tennessee Oil Men's Association will be held at the Peabody Hotel at Memphis July 22, according to G. B. Dickey, secretary.

Review of Late Production News

PRODUCTION climbed again to a new height the week ended July 6 when daily average was 2,857,400 barrels, a gain of 42,000 barrels over the high record of the previous week, according to the American Petroleum Institute.

Total new crude supply accordingly set a new high mark at 3,147,971 barrels the past week, which is an increase of 55,714 barrels over the previous week. Crude oil imports gained 13,714 barrels, to 290,571 barrels daily average for the week.

Responsible for the 42,000 barrel increase were California, Oklahoma and West Texas, which districts gained an aggregate of 43,850 barrels on daily average.

The largest changes in Oklahoma were increases of 7450 barrels in Oklahoma City; 6650 barrels in Earlsboro; and 3750 barrels in Little River. St. Louis pool fell off 2000 barrels.

Pecos county in West Texas gained 7400 barrels. Winkler county was off 1950 barrels.

Santa Fe Springs rose 12,500 barrels on daily average, to 268,000 barrels. A gain of 1500 barrels each was made in Huntington Beach, Long Beach and Midway-Sunset fields.

Salt Creek declined 1850 barrels. Eastern production rose 1650 barrels.

California

SANTA FE SPRINGS continued to yield its weekly increase to the daily average production of the State of California. New completions added approximately 40,000 barrels to the field to give a total of between 270,000 and 280,000 barrels. This increase from the deep zones at Santa Fe Springs caused the figure for the total daily average production from the fields in the state to nearly reach 880,000 barrels, for week ending July 6.

Considerable excitement was caused in California oil circles by the penetration of a solid oil sand 189 feet in thickness, on the western edge of the old Summerland field, by the Lincoln Drilling Co. This company's well Williams No. 1 is within a few hundred feet of shallow wells that have been pumping a few barrels per day for the past thirty years.

The new strike started flowing about 15 barrels of oil per day from a depth of 1252 feet when the cement was drilled out at 1061 feet. After flowing for a few hours with a heavy gas pressure on the casing the well sanded up and must undergo a cleaning up job before an estimate may be made of its future possibilities.

Production from the O'Connell zone at Santa Fe Springs is expected to be on the increase for several weeks to come.

Increased production is expected from the Kettleman Hills area shortly through the recompletion of General Petroleum Corp's. Ochsner No. 2.

Current production in this country by pools is found on page 113.

Texas, New Mexico, Louisiana

A Guadalupe county wildcat, seven miles southwest of Luling, promises to be the discovery well of a new field in the Edwards limestone producing province of south central Texas. The well is No. 1 Wilson of The Texas Co., in Block 9, Jacob C. Darst League, which picked up a showing of oil and gas in the Austin chalk formation at 2240-2248 feet. The Salt Flat field, 10 miles northeast in Caldwell county, was similarly discovered by a well in the Austin chalk, which overlies the more prolific Edwards limestone.

The Wilson test found the top of the chalk at 1719 feet, surface elevation 521 feet, making the formation approximately 400 feet higher than normal for the territory on the basis of sub-surface position and coastward dips of the region.

In the Andrews county area of the West Texas salt basin, Mid-Continent Petroleum Corp's. No. 1 Fisher test, sec. 5, block A-36, tested several bailers of heavy black oil at 4658 feet. At present depth the test is 410 feet below top of the lime formation, which was found structurally low at 1083 feet below sea level. Deep Rock Oil Co. tests previously drilled in Andrews county found the lime 825 feet and 1076 feet, respectively, below sea level.

No important changes are reported from the fields of New Mexico and Louisiana.

Oklahoma-Kansas

INDICATIVE of the increased activity of the past few months Oklahoma and Kansas both show new territories capable of adding materially to the daily production of each state. Oklahoma's newest field Sasakwa is making 13,500 barrels daily from 7 wells and now covers an area more than a mile long running southwest from the NE SE of 7-6N-8E to the center of 13-6N-7E.

With 78 active and tentative locations and one more new well apparently about to be brought in, the Oklahoma City pool is now beginning to take its place as one of the state's most active areas.

Regarded as typical of many chat areas to be found in as yet unexplored parts of Kansas the McPherson Oil and Gas-Shell Petroleum Corp.'s No. 1 Ritz some 30 miles northwest of the Sedgwick County play in the NW SE SW of 1-20S-2W is making 1000 barrels daily although partially choked.

Wyoming, Montana

A NEW field in Montana featured the news of the week in the Rocky Mountain states. The joint well of the Sunburst Oil & Refining company and the Bear's Den Oil company, drilled on the Bear's Den structure in the Sweetgrass Hills, has 700 feet of high grade crude standing in the hole. No test has been made, but the well is considered to be good for at least 50 barrels. Proof of the well's production has opened up a vast territory which will now be prospected in northern Montana and southern Alberta.

Announcement was made a week ago to the effect that two eastern Wyoming shallow oil fields would receive deep tests this summer. The Argo Oil company is ready to start such a test in the Mule Creek field and a test to the Pennsylvanian in the Lance Creek field is to be drilled by the Ohio Oil company, the Buck Creek oil company, and the Argo.

Midwest Refining company has recently completed two gusher wells in the Sundance sand in the Salt Creek field. Altho this horizon had been proved several years ago, it has been shut in until the present time.

Larger Oil Strings for Kettleman Hills Casing Programs Are Suggested

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, July 5

TWO promising casing programs, suggested for drilling to the 8000-foot levels of the Kettleman Hills field, were brought out at the meeting here June 26, 27 and 28, of the California section of the Division of the Development and Production Engineering of the American Petroleum Institute.

The first contemplates three strings, the second four strings. They are considered improvements over old practice in that the oil string is larger and also a more equitable division of the available clearances is accomplished. These suggested casing programs are described in detail later in this article.

John R. Suman, Humble Oil & Refining Co., national chairman, presided at meetings of the national executive committee held June 26. The second day was entirely taken up with the reading of a number of important papers. The convention was brought to a close on June 28 by field trips to various California oil fields in airplanes furnished by oil and supply companies.

Two papers read before the morning session June 27 aroused considerable interest and resulted in a lively discussion. Wendell M. Jones, chairman of the California drilling committee, presided during the morning and helped materially in starting discussion that followed the papers.

J. V. Kimber, Pacific Western Oil Co., presented a paper on "California Casing Practice," which brought up discussion of the adaptability of A.P.I. casing standards to deep drilling in various California fields. Most of the attending engineers were of the opinion that very little modification of these casing standards would be needed.

Following Mr. Kimber's paper, J. R. Gignoux, Shell Oil Co., presented a paper on "Programs and Standardization of Casing for Deep Drilling." This paper took the place of the one scheduled to be read by J. V. Coberly, Kobe Inc., on "Latest Developments in Casing and Casing Joints."

Mr. Gignoux emphasized the importance of selecting correct sizes and weights of casing for wells, especially in a new field, stating that an error on the part of operators that results in the use of an additional string of casing will increase the cost of a well by as much as $20,000.

Martin Van Couvering, secretary of the California district chapter of the A.P.I. division of development and production engineering

He also suggested that the factors of clearance, lengths of strings, and other mechanical features must be given careful thought by men with broad experience.

According to Mr. Gignoux, recently many operators have utilized combinations of 11¾-inch, 8⅝-inch, and a final oil string of 5¾-inch casings in wells in the Signal Hill field that are from 7500 to 8000 feet deep. In the Ventura field the practice is to set 13⅜-inch, 8⅝-inch and an oil string of 5-3/16-inch in wells between 7000 and 7500 feet deep. It is apparent from a study of these casing sizes that the oil-strings are quite small and that a better division of the available clearance might be made by changes in the sizes.

"The attention of the oil operators," said Mr. Gignoux, "is focused on Kettleman Hills field because wells there will probably reach depths in excess of 8000 feet, through exceptional formations and high pressure gas conditions. The development of casing programs has brought out the need for improvements over the programs of other deep fields, mainly to eliminate underreaming and provide larger oil strings.

"There have been numerous joint discussions among operators on this very important subject and at least two promising casing program suggestions have been advanced. The first suggestion contemplates the setting of three strings: a 13⅜-inch, 61-pound conductor string; a 9⅝-inch, 47.2-pound water string; and an oil string of 6⅝-inch, 26-pound casing.

"The second program proposes the use of four strings: a 13⅜-inch conductor string, a 9⅝-inch water string, a 7-inch first oil string, and a possible future oil string of 4¾-inch casing. These programs appear to be improvements over the Ventura and Long Beach practices, because the oil string is larger and a more equitable division of the available clearances is at the same time accomplished."

Because of their general interest, Mr. Gignoux named the factors leading to the selection of these two casing programs.

"EXPERIENCE in other fields," he said, "indicated that 13⅜-inch was a desirable size for the initial deep or commonly-called conductor string. While 11¾-inch had been previously used, the additional space provided within the 13⅜-inch was desirable and a general agreement on this size was easily attained. The oil string, as stated previously, was required to be as large as possible and 6⅝-inch or 7-inch appeared to be the logical selection.

"The choice of the intermediate, or water string, between the conductor and the oil string was then the problem. Previous practice indicated that the width of the annular space between the 13⅜-inch conductor string and the water string should be at least 0.75-inch and the space between the water string and the 6⅝-inch oil string should not be under 0.6-inch, which is between 70 per cent and 80 per cent of the clearance between the outside strings. This ratio between the spaces is in direct proportion to the diameters and also to the surfaces in friction.

"The depth to which the intermediate string would be carried depends

on the depths of landing shales and the oil sands; therefore, it was the judgment of the operators to specify minimum collapsing strengths equivalent to a collapsing depth of 5000 feet, and a strength of the joint in tension equivalent to a depth of 7500 feet, both with the usual factors of safety."

After these casing programs had been formulated, the manufacturers were requested to suggest casing to give the clearances specified and to provide the requisite strengths. In response, the manufacturers suggested 9⅝-inch casing of Grade C 1 steel, having an ultimate tensile strength of 95,000 pounds per square inch.

In the opinion of Mr. Gignoux, both the three and four-string programs appear to embrace the most desired features, although the 7-inch oil string in the 4-string program does not clear as freely within the 9⅝-inch water string as does the 6⅝-inch oil string in the three-string program. However, by the use of 7-inch casing, a future 4¾-inch oil string may be set, which is a great advantage when drilling in unknown territory.

Outstanding points in the suggested three-string program for Kettleman Hills were named by Mr. Gignoux as follows:

"13⅜-inch, 61-pound casing in Grade C material may be set to 6000 feet for tension and has a collapse depth of 2000 feet. The size of hole drilled for this casing is variable, but 19-inch diameter is a common size.

"9⅝-inch, 47.20-pound casing in Grade C 1 material may be set to 7500 feet in tension and it has a safe collapse depth of 5000 feet. The hole diameter required for its use would be that of the largest bit that can be run through the 13⅜-inch casing, usually 12¼-inch in diameter. This gives a clearance for the 9⅝-inch within the 13⅜-inch casing of 0.95-inch and within the 12¼-inch open hole of 0.81 inch.

"6⅝-inch, 26-pound casing in Grade C material may be set to only 6300 feet in tension and it has a safe depth of 5000 feet in collapse. This indicates that for 8000-foot holes, a casing of higher tensile strength should be provided for safety. The same size casing of Grade C 1 material will permit safe setting depths of 8100 feet and has a collapse depth of 6400 feet. The hole diameter required for the use of the 6⅝-inch would be that of the largest bit that can be run through the 9⅝-inch casing, usually 8½-inch in diameter. This gives a clearance for the 6⅝-inch within the 9⅝-inch casing of 0.65-inch and within the 8½-inch open hole of 0.56-inch."

Mr. Gignoux points out that although such definite weights as 61 pounds and 47.20 pounds are given in the preceding program, heavier weights may be substituted if desired, but these substitutions will be at the expense of clearances.

The need for improved casing programs to meet the conditions encountered when drilling to greater depths was stressed by Mr. Gignoux, who said that the examples he had given indicated the advancement already made to meet conditions at Kettleman Hills. He said that the programs given not only utilize a higher tensile steel in the manufacture of two of the casing sizes, but also bring into general use a casing that has hitherto been little used; namely, the 9⅝-inch O.D.

Looking into the inevitable future when 9000 and 10,000-foot holes will be drilled, Mr. Gignoux thought we could reasonably ask how the casing requirements can be met. In answer to this question, he said:

"We still have available better grades of steel. Steels with yield points as high as 75,000 pounds can be used instead of those with 55,000 pound limits in normal use. The theoretical formulas for determining the tensile strengths of casing all show this factor to be directly proportional to the yield points of the steels. Hence, a size of casing made of the now commonly used steels which may be set at 8000 feet can be improved to permit its safe use at 10,000 or 11,000 feet, if made of a steel with a yield point of 75,000 pounds. This can be accomplished without change of diameters or of well thicknesses, although we may reasonably expect that the couplings will have to be lengthened."

In conclusion, Mr. Gignoux said that, since the advantages of other standardized forms of equipment have been proven, we may logically assume that the same advantages will result from the use of uniform casing programs for each field or locality and that the establishment of such programs would require only a minimum number of sizes and grades of casing, reducing the casing stock investment and, thereby, drilling costs, an item of paramount importance to the operator.

At the morning session of the convention, representatives of the pipe mills were asked to give the attitude of the manufacturers toward demands made by the oil industry. These representatives included Lester Black, Pittsburgh Steel Products Co.; J. B. Gocke, Youngstown Sheet and Tube Co.; B. L. Stroud, National Tube and L. R. Keim, Oil Well Supply Co. They were agreed that the manufacturers are willing to cooperate with the operators, and stated that at the present time they were making a pipe known as Grade C-1, which is reported to be above the A.P.I. specifications.

In the discussion carried on by this group and by attending engineers, the question was brought up as to the feasibility of using longer collars and threads on casing as a preventive of the pulling apart at joints when drilling at great depths.

During the afternoon session, members of the California production committee, under the chairmanship of Francis Lake, of the Union Oil Co., presented four interesting papers, including one by A. C. Dyer, engineer of the U. S. Geological Survey at Taft, California, on "Economic Operation of Small Wells." (The first portion of this paper is published in another portion of this issue.—Editor).

Discussion during the afternoon session was confined chiefly to pumping speeds and length of stroke, effect of casing head pressure, tubing depths and types of pumps.

Josey Oil Co. Sells To The Texas Co.

TULSA, July 6.—For a consideration understood to be around $2,000,000, The Texas Co. yesterday concluded the purchase of the Josey Oil Co., of Tulsa. Practically all the stock in the company was held by its president, R. A. Josey.

The company had 68 wells producing around 2,800 barrels daily. Some of this was partnership holdings, however, and scaled down to deduct partnership and royalties, The Texas Co. has acquired about 2,100 barrels daily settled production.

The deal has the effect of removing a little more of the dwindling supply of "free oil" from the market. The Texas Pipe Line Co. has been running around 1,800 barrels daily of the total amount produced by the Josey and the partnership interests that existed in some properties. The rest was split up among the Prairie, Oklahoma, Cosden, Yale, Cushing and Consolidated pipe lines.

The best of the properties was the south half of the northwest quarter and the north half of the southwest quarter of 33-12-11, in the Josey pool of Okfuskee county, Okla. Thirteen wells are producing about 1,400 barrels daily, the principal pay being the Wilcox. This pool was discovered by the Josey in 1923.

The company was organized in 1917. Other officers were L. W. Bennett, secretary-treasurer; V. H. Combs, general manager; J. H. Woods, assistant treasurer; H. E. Harvey, purchasing agent and O. L. Carter, field superintendent. Mr. Josey retained most of the unproven acreage he held, which was in the Hemlock and Lilac companies. He plans to continue in business with the same personnel.

Petroleum imports into Great Britain during the four weeks ended April 27, were the largest on record for any similar period except for two or three in the summer preceding. The United States shipped more than half of that country's gasoline imports of 95,703,444 imperial gallons in that period.

Use of Cement to Forestall—Not Cure—Well Trouble, Is Most Profitable

By John Power
N. P. N. STAFF WRITER

OIL HILL, Kans., July 5

CEMENTING problems, in common with most others the production man is called upon to solve, vary from field to field, and almost from well to well.

George T. Hoisington, of the Halliburton Oil Well Cementing Co., who addressed members of the El Dorado, Kans., field chapter of the American Petroleum Institute Division of Development and Production Engineering at the regular monthly meeting here July 2, told the field men present that a clear picture of what the particular cementing job was expected to accomplish was of prime importance in attacking the problem.

Kansas, a cable tool country, is just beginning to be really interested in the use of cement in oil wells. Probably half the cementing work done so far in the state, said Mr. Hoisington, has been done because the hole demanded it, and not, as should be the case, to prevent the occurrence of the trouble. To forestall, and not cure trouble is the most profitable use of cement in oil wells, he said.

It is risky business, he said, to expect a formation shut off, or casing seat, to last indefinitely, although in many cases when pipe is set, particularly in wildcat tests, it is not known how long the pipe is to remain in the hole. To cement a string of 8-inch, for example, means not only that a considerable portion of that string is in the hole to stay, but that there is a considerable danger of running out of hole during the later drilling of the test to greater depths.

To solve the first problem, Mr. Hoisington suggested that a right-and-left thread nipple and collar be run say about 250 feet above the casing shoe. With this nipple in the string, it would be possible to cement up to the nipple, which in many cases would be a sufficient distance to give the necessary collapsing safety factor, as well as aid the formation in giving a good and lasting shut off. If it later became necessary to pull the string for any reason, the left hand threads on the nipple would make it possible to do so fairly close to bottom, thus permitting the salvage of the major portion of the string.

In the case of a wildcat where the presence of the few joints of pipe might make the drillers run out of hole, under-reamers are so far about the only solution. When the point is reached where it is definitely known that the pipe is to be set and the hole reduced, then it should be cemented for safety sake.

There are, said Mr. Hoisington, but two generally successful methods of putting the cement on bottom. One is the two-plug method, so common in rotary drilled holes, and the other is through tubing. Exact information as to the condition of the hole, relative position of the various formations, and having plenty of material on hand at the start to see the job through any unusual circumstances which may arise are essential in the completion of successful cementing jobs, he said.

The dump bailer method of cementing, he said, had many draw backs. For one thing it was next to impossible, he believed, to get a uniform cementing job at the bottom of the hole, due to the necessary elapsed time between the bailer trips. Again, should the bailer dump on the way down, a great deal of trouble might easily result.

Cement should be run thick, the water-cement ratio being kept as low as possible. Recent practice has proved that a thick cement can be handled efficiently at the surface, while a thin cement, or one in which the water-cement ratio is high does not have the strength when set which a proper safety factor demands.

N. M. Hutchinson, chief production engineer for the Empire in the El Dorado district, told of that company's successful use of cement in providing a casing shoulder for a string to be set on top of an unexpected pay encountered in the Empire's No. 50 Murray, in 30-25S-5E. The pay, considered too good to case off, was encountered at 603 feet while carrying some water.

Thirty-two feet of the hole was filled back up with chat and mud. A string of 6⅝-inch pipe was run to about 60 feet of the top of the plugging spot, and 12 barrels of fresh water put in the hole. The well was shut down for 12 hours to give the fluid a chance to seek its natural level, and so that there would be no movement of the fluid while the cement was setting. Eight sacks of Oil-Max cement were mixed and run just as thick as possible and yet thin enough to run with a cement bailer, run two sacks at a time. A Baker "Sure Shot" cement plug was run on the bailer and landed in the casing shoe on the 6⅝ pipe.

After the pipe had been lowered to the plugging and the well had been allowed to sand three days, the hole was bailed dry and cleaned out to bottom. But three feet of cement had to be drilled out of the casing.

The hole is now being cleaned out after having been shot with 10 quarts. The water is completely shut off, and the pipe is setting in good shape.

The introduction of the fresh water in the hole was of twofold benefit. First, it aided the setting of the cement, which sets better in fresh than salt water. Second, the water helped to fill the hole up to the natural fluid level.

Three other wells have since been cemented in this manner, said Mr. Hutchinson, with satisfactory results in each case.

Hearing on Oil Tariff Set for July 10

TULSA, July 6.—To date the governor of Oklahoma has not met the request of some of the Independent producers and royalty owners who asked him nearly two weeks ago to take the lead in getting governors of oil producing states to send delegates to an oil tariff conference and hearing in Washington.

The governor did not deny the request—he simply has made no move up to this time.

Senators Pine and Thomas, of Oklahoma, have notified tariff advocates that the Senate finance committee will hold a hearing about July 10 on the jointly sponsored amendment of the two senators to the tariff bill. That amendment provides for a duty of $1 per barrel on imported crude oil and a 50 per cent ad valorem duty on refined petroleum products.

Several representatives of associations pledged to the tariff will attend the Washington hearing. Among them will be H. B. Fell, Southern Oklahoma Oil & Gas Association, Ardmore; C. J. Wrightsman, Tulsa, who heads the committee of Independent producers working for a tariff and Guy H. Woodward, secretary of the Mid-Continent Royalty Owners Association.

HOT weather is upon us. Early in the morning the pavement begins to shimmer. You can just see the heat waves dancing to their devil's tune. One who went to the country last Sunday reported that he saw a dog chasing a rabbit and that they were both walking.

Added to the other irritants of the season, several gangs of riveters turn loose at intervals, pushing up the steel on more new buildings designed to make Tulsa a bigger and, we hope, better place in which to live. Our west room becomes a cherry-red in color in the afternoon. Hence we try to do our literary work in the forenoon and spend the afternoon visiting folks who have east rooms.

All this is bearable, though, with the water cooler not far away. We are moved to a tear of compassion at the thought of that Continental Oil Co. party on its 5,500 mile bus trip. We saw the expedition at Sapulpa on its first day out. It is no pleasure jaunt with casual looks at the properties along the road.

The officers and department heads of the newly merged Continental and Marland companies appeared to be intent upon the business in hand. It was noon when they finished their tour of the Sapulpa refinery and there was a Fred Harvey house nearby. But there was Seminole yet to be visited and Oklahoma City to make as the night stop, so into the bus the party of 20 climbed and started off eating the hamper of sandwiches and other things that had been loaded on board at Ponca City early in the morning.

They had music with their meals, however, for a radio up near the driver's seat was catching somebody's piano recital. The journey calls for an average of 260 miles per day, with numerous stops to look at leases, refineries and marketing properties. We asked President Moran if they intended to maintain this stiff schedule. "Sure," he said, "we have two drivers and we can make up at night whatever distance we fail to make in the daytime."

Personally, if anyone intends to merge us, we hope he will do it in cool weather.

* * *

Born: To Mr. and Mrs. T. E. Weirich, a girl. Mr. Weirich is chief geologist of the Tidal Oil Co.

* * *

Born: To Mr. and Mrs. Logan L. Van Zandt, of Tulsa, a girl, in La Jolla, Cal. Mr. Van Zandt is an independent oil producer.

* * *

With the coming to Tulsa of H. N. Pardee as assistant to Manager E. R. Filley of The Texas Co.'s Oklahoma-Kansas-Texas producing division, there are now two ex-umpires here, or enough to start a new association. We suggest as title The National Association of Former Proration Umpires. The other member would be Ray M. Collins, who officiated for the operators in Seminole. Mr. Pardee was one time umpire in the Winkler county, Tex., field. His most recent post of duty was in north central Texas, the move to Tulsa being a transfer by The Texas Co.

P. S. Former Umpire Collins says the new organization should be styled a club rather than an association, as it would be purely social with no business to transact.

R. S. Ellison

Gypsy Oil Co. has established a district office in Oklahoma City, moving most of the personnel for the new post from Shawnee. R. V. Rushmore, land man, is in charge. Geologists J. T. Richards and R. L. Voss and Scouts Jack Adams and Wes Caughron will make Oklahoma City their headquarters.

* * *

The Skelly Oil Co., through its official company publication, *Skelly News*, felicitates the company's pipe line superintendent, Tim Manion on having gone 19 months without an accident in his department of 67 men serious enough to cause loss of time from work. "Mr. Manion," says the *News*, "is a born leader, a forceful example to those with whom he is surrounded. Constantly he preaches safety and forethought in the necessarily dangerous work he supervises."

* * *

The accompanying picture, "in character," is of R. S. Ellison, vice-president of the Midwest Refining Co., whose home is Casper. He is here attired for one of his occasional pleasure jaunts to some historic spot in Wyoming. In such excursions he finds his chief pleasure. The pistol, we hasten to explain, is merely scenery or at best is carried for no bigger game than a rattlesnake.

Mr. Ellison was born in Indiana and received his higher education in that state's university. He established a law practice in Colorado Springs about 1900 and after remaining there for several years became associated with the Midwest Refining Co. He came to Casper in 1919, having in the meantime moved over from the legal to the operating end. He is now the senior vice-president of the company in charge of the producing department.

For many years his hobby has been the study of western history and he has made important contributions to the written word along this line by ferreting out details concerning the discovery and settlement of various regions.

He is a director of the Oregon Trail Memorial Association and is chairman of the Historical Landmark Commission of Wyoming, whose function it is to set aside and mark properly those spots in the state that are identified

with events or persons of consequence in the building of the state.

Recently, through his help, the state of Wyoming purchased the land on which stands old Fort Bridger, in the southwest corner of the state, which site includes the first house built in the state, stables of early-day pony express and many another object rich in sentiment.

* * *

Some golfing principles, passed along to us by Herb Ladd, Midwest Refining Co., Casper:

The Etiquette of Golf

1. At the start of the game take the honor without consulting your opponents. Should they speak for it first, select the best spot on the tee and set your ball up, indicating your enthusiasm to get started.

2. After making a poor drive, register surprise and examine your club carefully.

3. Cooperate with the Grounds' Committee by glaring at your caddie each time you tear up turf—it probably was his fault anyway.

4. Be sure to express sympathy for an opponent on his poor play by saying casually at every opportunity, "So Sorry."

5. Should his drive trickle into a bunker, remark consolingly, "I am afraid you are in the bunker, I hope."

6. When you come to a water hole, try to remember you are playing golf and not pool.

7. Always start looking for your opponent's ball thirty or forty yards beyond where you think it might be—even though you don't find it (and he forfeits the hole). He should appreciate the compliment.

8. Before pocketing a ball lost by another player, it is well to wait until it has stopped rolling.

9. A good way to test your opponent's power of concentration is to whistle "How Dry I Am" while he is trying to putt. Copies of the tune may be secured at any music store.

10. Remain on the green until the scores are all counted and agreed upon. If the course is crowded, this will teach self-control to the following foursome.

11. Never argue with your opponent over his score—ask him first, and you have every advantage.

12. When some one yells "Fore"—Look Out—they may not be checking your count.

13. After your best drive of the season, turn around disgustedly and say, "No distance."

14. At the nineteenth hole—keep eye on your highball and swallow through.

15. Don't forget to say, "The shower is the best part of the game."

Ten Years Ago

(From National Petroleum News, July 9, 1919)

Crude oil congestion at Burkburnett causes some sales at 25 cents under the market.

Empire announces new oil line from Healdton at Burkburnett.

C. P. Clayton becomes general manager of Caddo Central Oil & Refining Corp., resigning as Louisiana superintendent of The Texas Co.

Texas Pipe Line Co. announces new line from Burkburnett to Healdton and Mid-Co Petroleum Co. one from Burkburnett to Lawton, Okla.

Morlang Heads Enlarged Division for Oil Well

Harry J. Morlang

HOUSTON, July 5.—Election of Harry J. Morlang to a vice presidency of the Oil Well Supply Co. has been followed by announcement that hereafter he will have charge of all the company's operations west of the Mississippi River and east of California. Mr. Morlang's headquarters will be removed to Tulsa from Fort Worth, where he had previously been North Texas district manager.

Heretofore, the Oil Well Supply Co. has divided its activities into North Texas, South Texas, Mid-Continent and Rocky Mountain districts, also maintaining Canadian headquarters at Calgary, Alberta. Under the new plan these divisions are being consolidated into a general Midwest division under Mr. Morlang at Tulsa.

In addition to his activity in the equipment sales branch of the petroleum industry, Mr. Morlang has taken a prominent part otherwise in the business life of Texas since locating at Fort Worth in the early days of Ranger development. He has been a leader in work of the Texas division, Mid-Continent Oil & Gas Association.

Probe of Salt Creek Leases Closed

WASHINGTON, July 8.—The Senate committee on Public Lands and Surveys, the body that started the Teapot Dome investigation, has all but closed the inquiry into oil leases on government lands in the Salt Creek field, Wyoming, in which the Midwest Refining Co., through subsidiaries, is the largest single operator.

Attorney General Mitchell has written a letter to Senator Nye, chairman of the committee, advising him that, with the limited time and funds at its command, the Department of Justice has not been able to find any grounds for either civil or criminal procedure against the holders of leases. Many of these leases are held under preference rights given them by the terms of the national leasing law of 1920 on account of exploration and prospecting work done while such lands were still subject to entry under the placer mining laws.

Owing to rumors that there had been fraud, particularly under the preference rights, Senator Norris of Nebraska, in 1928, had the Senate adopt a resolution directing the committee on public lands and surveys to inquire into the matter. The committee held some hearings in 1928 and more early this year. At the same time the committee asked the Attorney General to turn his sleuths loose in the matter, with the result before set forth. The Attorney General, however, said that if the Senate directed and made money provision for a more searching inquiry it would be undertaken, although on the facts thus far developed there seemed to be no ground for further proceedings.

On receipt of that letter Senator Nye said it seemed the committee might as well close the hearings and write a report on what it has developed and that seems likely to be done when the committee meets at the resumed session in August.

Maps Gas Field

CLEVELAND, July 6.—A new structural map of the Big Sand Draw gas field in Wyoming has been prepared by the U. S. Geological Survey. The map shows structural contours on top of the Frontier formation, location of wells, roads, streams, fault lines, formation boundaries and other features.

The area covered includes parts of townships 32 and 33N, R. 95 W. Work was done by C. E. Dobbin, geologist and G. H. Cronin, petroleum engineer. Copies of the map may be had from the geological survey at Washington and Casper.

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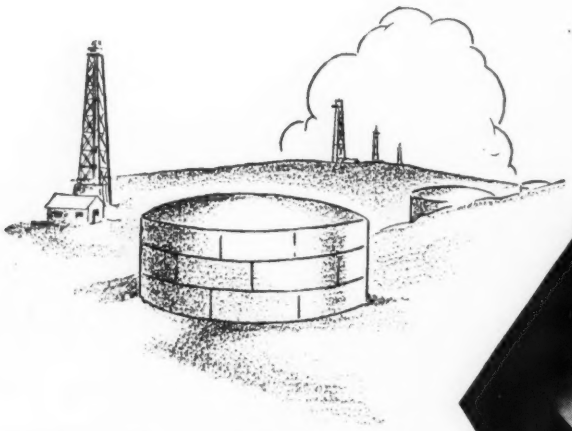

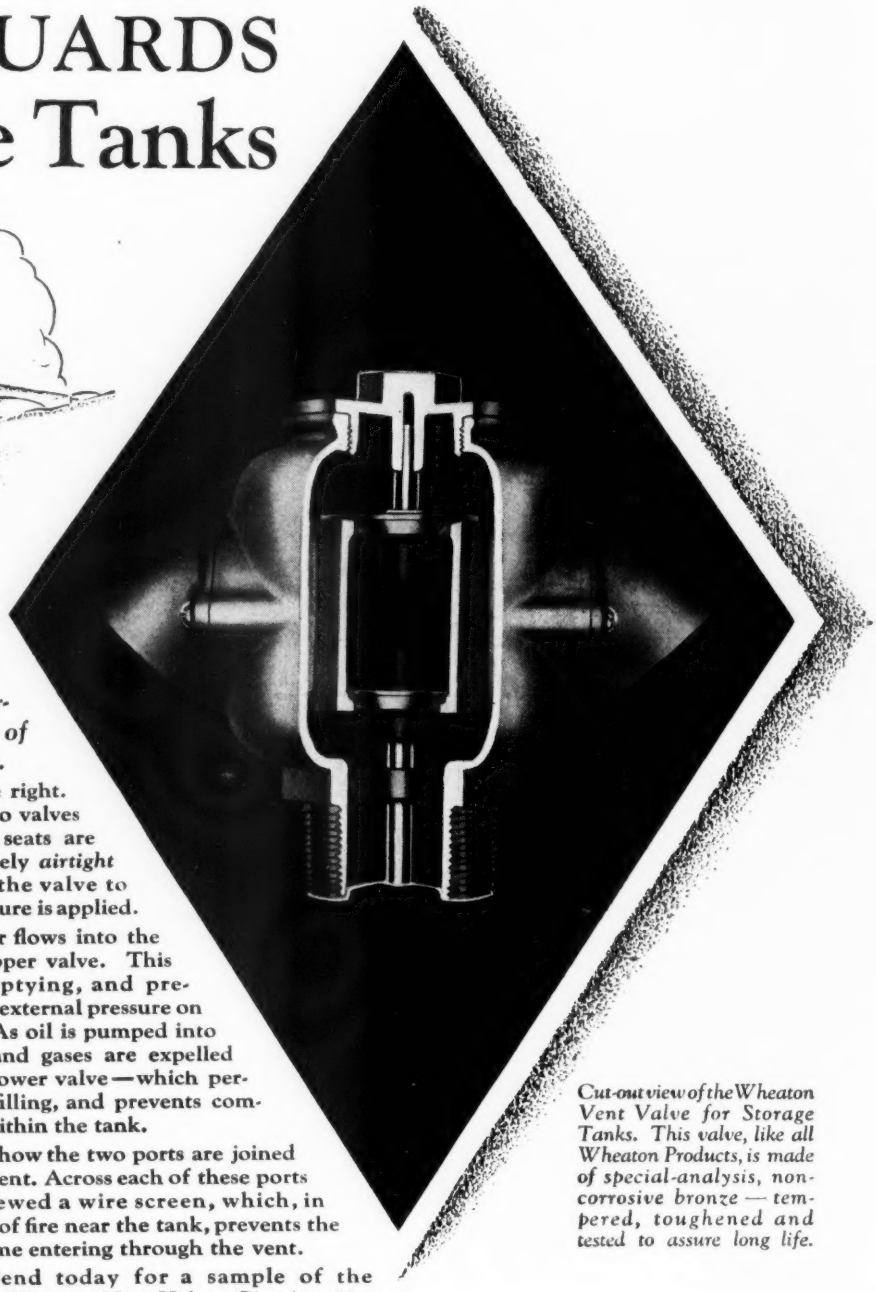

The Wheaton Vent Valve for Storage Tanks provides the *perfect admission and expulsion of air*—essential to real *safety.*

Look at the cut-out view at the right. Observe how *precisely* the two valves fit into their seats. These seats are *ground*—they are absolutely *airtight* when shut and enable the valve to open the *instant* air-pressure is applied.

As oil is drawn off, air flows into the tank through the upper valve. This permits quick emptying, and prevents vacuum and external pressure on the tank walls. As oil is pumped into the tank, air and gases are expelled through the lower valve—which permits quick filling, and prevents compression within the tank.

Observe how the two ports are joined to the vent. Across each of these ports is screwed a wire screen, which, in case of fire near the tank, prevents the flame entering through the vent.

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Wilcox Production in Sasakwa Pool Reaches 13,500 Barrels Daily

By John Power
N. P. N. STAFF WRITER

TULSA, July 6

WITH the check-rein of restrictive agreements gone, Oklahoma is fast putting itself in a position to answer, for the time being at least, the query, "Have we enough oil?" Almost over night two areas in the general direction of Seminole have sprung into prominence as potential pools, while recent developments in the Oklahoma City pool are indicative of a possible major amount of daily production from this source before long.

What with the Allen pool of southern Seminole county, and the sporadic Wilcox sand development due west of the Allen field, there has been oil activity in the neighborhood of Sasakwa, Oklahoma, for some time. Less than two weeks ago, however, the first imposing Wilcox sand well was completed by the Sinclair Oil & Gas Co. some seven miles north of the previous Wilcox area. Prior to that time Wilcox showings, coupled with short term leases, had been enough to start several drilling wells in the then virgin territory.

Since Sinclair completed its No. 3 Davis in 7-6-8, six wells have been completed in the Wilcox for a combined daily production of some 13,500 barrels. Of these one is more than a mile to the southwest of the original wells, which gives the pool a greater areal extent than is usually the case on such short notice.

Peculiarly enough, the "discovery" well of the Sasakwa pool was a Wilcox dry hole. The Sinclair drilled its No. 1 Davis, in the NE SW SE of 7-6-8 to the Wilcox, in which formation is made a failure. The well was plugged back to the Simpson, in which production had been encountered, and was produced from that formation. Daily production from the Simpson now amounts to some 300 barrels. The south offset to the number one well, the Davis No. 3 was next completed in the Wilcox, where it had an initial production of more than 150 barrels hourly.

Developments began happening in short order after the completion of the No. 3 Davis. The Shell Petroleum Corp. drilled in its No. 1 Holacka for more than 100 barrels per hour a quarter mile due east of the Sinclair's No. 3. Within a few days the Sinclair completed its Nos. 2 and 4, north and northeast offsets to the No. 1 respectively.

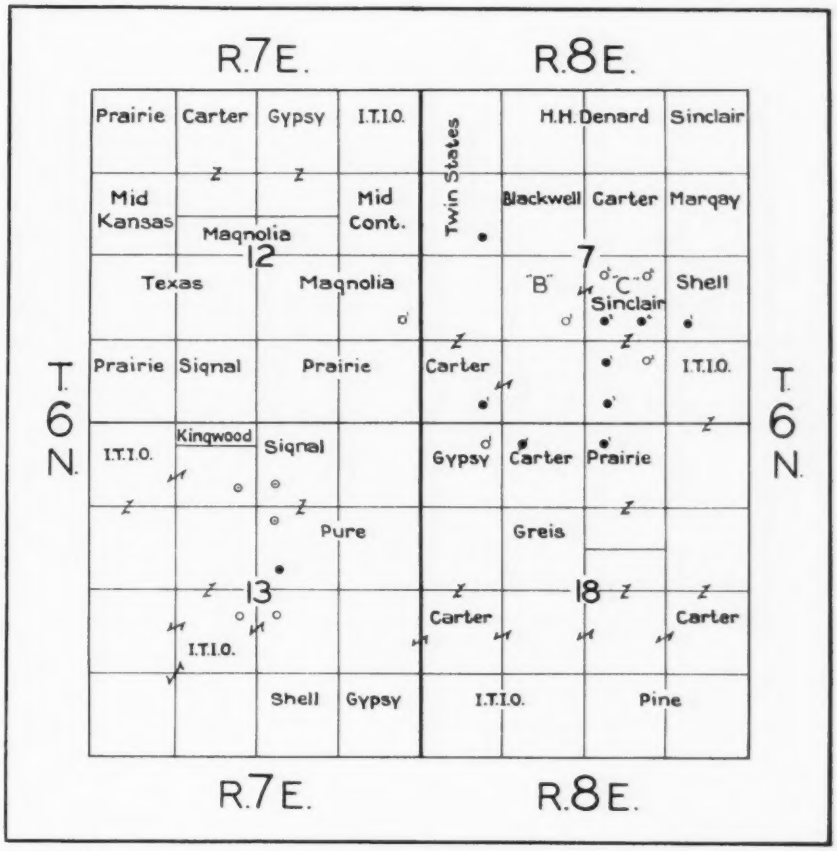
Almost without a let-up the rapid fire of completions continued to include the Signal Oil Co. (J. B. Foster, of Tulsa, et al) and the Pure Oil Co. No. 1 Bond, the SW NE of 13-6-7, about one mile southwest of the others. Next came the Prairie Oil & Gas Co. with its No. 1 Patten, south offset to the Sinclairs No. 3 Davis with an initial production of 85 barrels per hour, later increased. A table follows showing production by wells.

(Simpson Production)	Barrels
Sinclair No. 1 Davis	288
Sinclair No. 2 Davis	3384
Sinclair No. 3 Davis	3045
Sinclair No. 4 Davis	1512
Shell No. 1 Holacka	2039
Signal-Pure No. 1 Bond	1167

The 18-9-6 extension to the Earlsboro pool, a recent addition to the productive list, now adds some 26,000 barrels daily to the Seminole areas gross production, which for the week just ended had an average 395,500 barrels. Although the number of wells in the extension remains the same as last week the spot shows an increased production from the 21,000 barrels per day of the preceding week.

Placing the Magnolia No. 2 Anderson, two locations east of the discovery well, on full production helped to bring about the increase. This well which had been making some 200 barrels per day before while cleaning out after a light shot is now putting close to 5000 barrels per day into the tanks. The two wells on this particular quarter section now have a combined production of 11,000 barrels per day. Several new locations have been made in the vicinity of the seven well pool, which so far is principally confined to the east-west diameter of the section. About ten wells are drilling in there now.

The Oklahoma City pool, with 16 wells drilling below 6000 feet, is fast



The Wilcox area of Sasakwa, northwest of the Allen pool of southern Seminole county. The area has a production of 13,000 barrels almost overnight

"Rolls Royce," says the radiator emblem—and what a world of meaning the message carries!

"Cementing by Halliburton," says the well's specifications, and again much is said in few words — permanent insurance against shifting formations, migration of fluids and intrusion of upper water; as long as the well is in existence, the most thorough protection that equipment, experience and engineering skill can provide.

HALLIBURTON OIL WELL CEMENTING CO.
DUNCAN, OKLAHOMA

preparing to take its place as one of the state's important producing areas. The field now boasts six producing wells, making a total daily production of almost 20,000 barrels. Of these six, one is not yet fully completed.

The Mid-Kansas No. 1 Fortson, south offset to the No. 2 well which is the farthest north producer on the field, is making but 90 barrels per day, and still drilling at a little below 6440. It is about half a mile northwest of the discovery well, and is reasonably expected to be the Capital City's next oil well.

Of principal interest in the field during the past week was the deeper drilling in the Sinclair Oil & Gas Co. No. 1 Stamper, which having fallen to some 2200 barrels per day was increased to 2900 barrels per day when drilled to 6497 feet. Another foot of drilling increased production to 200 barrels per hour.

In the discovery well no increase in production was found below 6407, though the well was drilled to 6498 feet. It is the discrepancies in producing depths that makes the future of the field so hard to predict, as wells which are apparently running hopelessly low suddenly encounter some unknown pay which admits them into the charmed circle of imposing producers.

Asher, the Viola lime production some 25 miles due south of Shawnee, took a sudden turn for the better when reports from the field told of the Commerce Development Co. well on the Asher townsite, which is starting off at an 80 barrels per hour clip from the pay in the Viola lime topped at 3680-3688. This well, the farthest west producer in the field, is separated from the rest of the producing area by two dry holes, as well as by some tests which were shut down when they ran extremely low on some of the marker formations.

It is considered likely that the Commerce well has topped another "hickey" in the Viola lime which may contain a few highly productive wells such as were found in the original Asher pool. Such tests as have been carried to the Wilcox have been disappointing.

Not counting the new well on the townsite, the Asher pool now is making about 9000 barrels from 11 wells. An increase in drilling activity may be expected around the extension well, as it lies in the heart of the town lot part of the play.

In Kansas the completion of the McPherson Oil & Gas Co.-Shell Petroleum Corp. No. 1 Ritz, in the NW SE SW of 1-20-2W, has gone far to indicate the presence of important chat production in the area northwest of the Sedgwick county pool. The well, which made 168 barrels the first hour and 35 minutes it was in, has subsided somewhat, after the manner of chat wells, the present production being around 1000 barrels per day. Water has made its appearance, amounting to 1 per cent after treating. In 9-21S-3W, southwest of the above well, the test of Washebaugh et al is reported making 20 barrels an hour from the same chat formation.

These chat wells, which have been found in many places in Kansas, are flashy in the extreme at first, but soon subside. Their rate of flow is caused by the water pressure in the formation back of the oil. They can, however, produce a lot of oil, the Marland Production Co. No. 1 Goodrich, northeast of the Valley Center pool of Sedgwick county is an excellent example. The latter is still making better than 600 barrels daily, though more than six months old. Although seldom are chat areas long-lived enough to constitute any real overproduction menace, several of them combined may easily be counted on to swell the state's production well above its present level of 118,000 barrels daily.

If Sedgwick county contains many such areas, it is a fairly good bet that they will be discovered before long. The county now has 80 drilling wells going. The 94 producing wells in the pool have a total daily production of 34,300 barrels, and have produced a cumulative of 3,864,000 barrels.

R. P. Tinsley

R. P. Tinsley Is New S.O. New York Director

NEW YORK, July 5.—A 37-year connection with the Standard Oil Co. has resulted in the election to the board of directors of Richard P. Tinsley on May 31. Mr. Tinsley has been treasurer of that company since 1911.

Joining the old Standard company in the Baltimore division in 1892, he was transferred three years later to 26 Broadway as accountant for domestic trade. In 1904 he was made vice president of the Waters-Pierce Oil Co., St. Louis, the Standard subsidiary in Missouri. In the following year he left that post to become traveling representative in the Standard Oil Co.'s foreign trade.

In 1908 Mr. Tinsley was appointed assistant comptroller of the Standard of New Jersey, and since the dissolution decree of 1911, he has been treasurer of the Standard of New York, except during the six years between 1915 to 1921, when he was vice president of the American International Corp.

Mr. Tinsley is a graduate of New York University and makes his home in New York City.

Notes on the Week

The community test being drilled on pooled acreage in 16-9-6 by the Carter Oil Co. turned in a surprise during the week. After getting water in the Wilcox at 4315 feet, the hole was plugged back to the Cromwell at 3575. The pipe was ripped to test this horizon, and the well responded with a daily production of some 40 barrels.

* * *

The 7-4 country added another producer in the Simpson during the week. It now appears that the production from this area, once highly regarded as a likely spot for Wilcox production, is to be confined to Simpson and Hunton lime for its principal output, although there are a couple of light Wilcox wells now producing. The new well is the Darby Oil Co. No. 1 Nixon, SW of 9-7-4 which is swabbing and flowing 45 barrels an hour from a total depth of 4090 in the Simpson.

* * *

Reflecting its operation of new pipe line capacity northward from the Mid-Continent and the big seasonal demand, Prairie Pipe Line Co. set a new high mark in deliveries in June, when it reported a total of 6,482,036.24 barrels, or a daily average of 216,067 barrels. In May the company's total deliveries were 6,098,711, a daily average of 196,410 barrels.

A complete guide to the location of stations where its gasoline and motor oils can be found has been issued by the Cities Service Oil Co. This is in the form of a pocket sized booklet carrying the names of the state and the towns in the various states where the company has stations or its products are sold under Cities Service names or listed alphabetically under each state.

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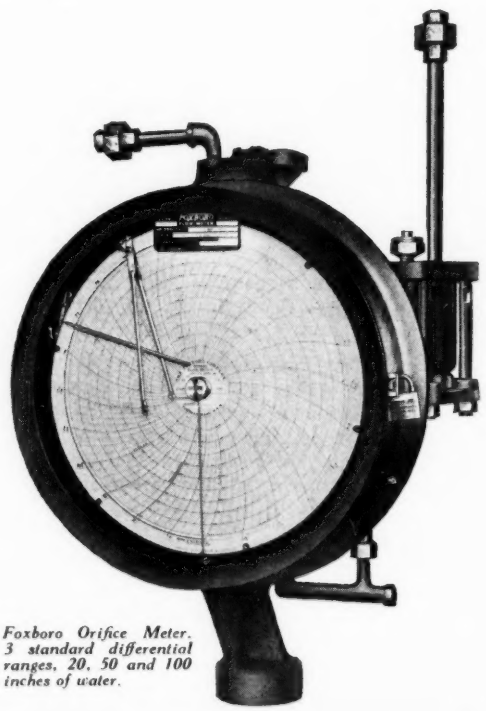

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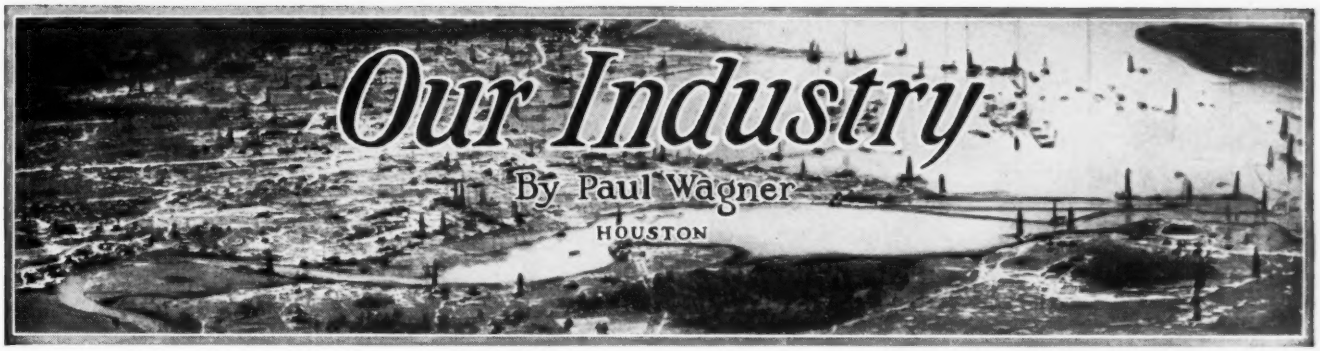


L. B. (Tip) O'Neil of Los Angeles, who formerly headed Montana activities of the California Petroleum Corp., before its absorption by The Texas Co., is now operating independently. He is associated with his brothers, John and Ignatius. "Tip" and John O'Neil built the International refinery at Sunburst, in 1924, operating it independently until sale of their properties to California Petroleum Corp.

* * *

M. C. Carlson, auditor of the Mexican Gulf Oil Co., at Tampico, spent June in Los Angeles on a vacation trip. He was accompanied by Mrs. Carlson.

* * *

R. B. Newcombe, writing on oil and gas development in Michigan for the Geological Survey division of the Department of Conservation, at Lansing, refers to the present practice of one large operating company in drilling shallow (core drill) tests for its prospecting activity. Future results, according to Mr. Newcombe, should bear out the practicability and value of the program in comparison with deep tests drilled on mere suggestions of structure.

Prospecting in Michigan is complicated by the presence of glacial drift covering the entire southern peninsula of the state. Mr. Newcombe is author of the oil and gas part of publication 37, series 31, Michigan Geological Survey (1928), just off the press at Lansing.

* * *

Three of the original office force of the Lone Star Gas Co., at the time of its organization 20 years ago, continue their connection with that corporation. They are L. B. Denning, president; D. L. Cobb, treasurer; and Grover C. Reed, head of the telephone department. The company, which makes headquarters at Dallas, was organized in Fort Worth.

* * *

C. D. Fletcher, paleontologist of the Gulf Refining Co. of Louisiana, has been moved from Shreveport headquarters to Meridian, Miss., where he will be closer in touch with exploratory operations. B. W. Blanpied, geologist, and Edward F. Warren, Jr., geological scout, had been previously quartered at Meridian by the Gulf. S. E. Mix and C. M. Dorchester of the geological department at Shreveport, also spend a considerable part of their time in Mississippi.

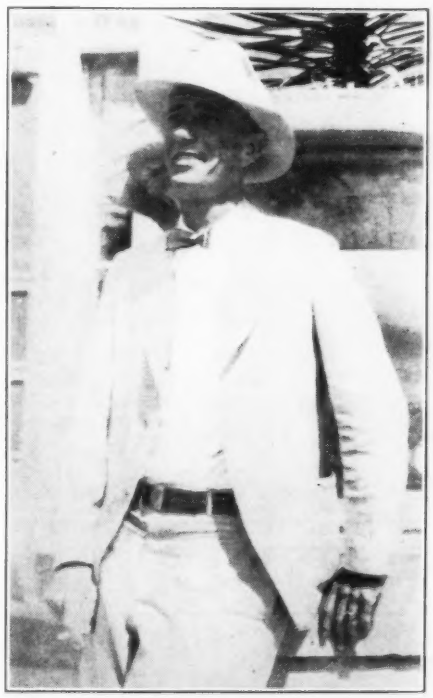
Resident representatives in Mississippi of other companies include E. V. Whitwell, geologist of the Carter Oil Co., Tulsa; B. E. Bremer, geologist, The Texas Co.; R. A. Moore, geologist, Louisiana Oil Refining Corp.; 'Gene E. Alcott, scout, Pure Oil Co.; J. R. Whalen, land department, Ohio Oil Co.; Donald J. Munroe, Sun Oil Co.; Frank G. Hulse, land department, Shell Petroleum Corp. The Shell has also had W. W. Waring, geologist, stationed at Amory, in the Paleozoic area, where the Cincinnati arch plunges beneath the Coastal plains formations.

* * *

G. C. Scott has succeeded E. F. Clagett as manager of the central Ohio producing division of the Pure Oil Co. Mr. Clagett was transferred to Saginaw as manager of the Michigan producing division. Mr. Scott had been in charge of the central Ohio land department.

* * *

J. H. Hassheider, formerly at Houston as Gulf Coastal production engineer of the Pure Oil Co., has been transferred to Texas division headquarters at Fort Worth, where he works with R. B. Kelly, chief production engineer. V. Posky of the land department, who had been stationed at Houston several months, was also transferred back to Fort Worth.



W. W. Wallace

W. B. Flournoy has returned to the Smiths Bluff tank farm, below Beaumont, resuming his duties as chief gauger, a position occupied by him prior to the time he served in the Winkler field of West Texas.

* * *

W. R. Bowden has been transferred from Cisco to Midland, as deputy district supervisor of the Oil and Gas Division, Railroad Commission of Texas. He succeeded H. H. Fitzpatrick, who was granted an indeterminate leave of absence because of illness.

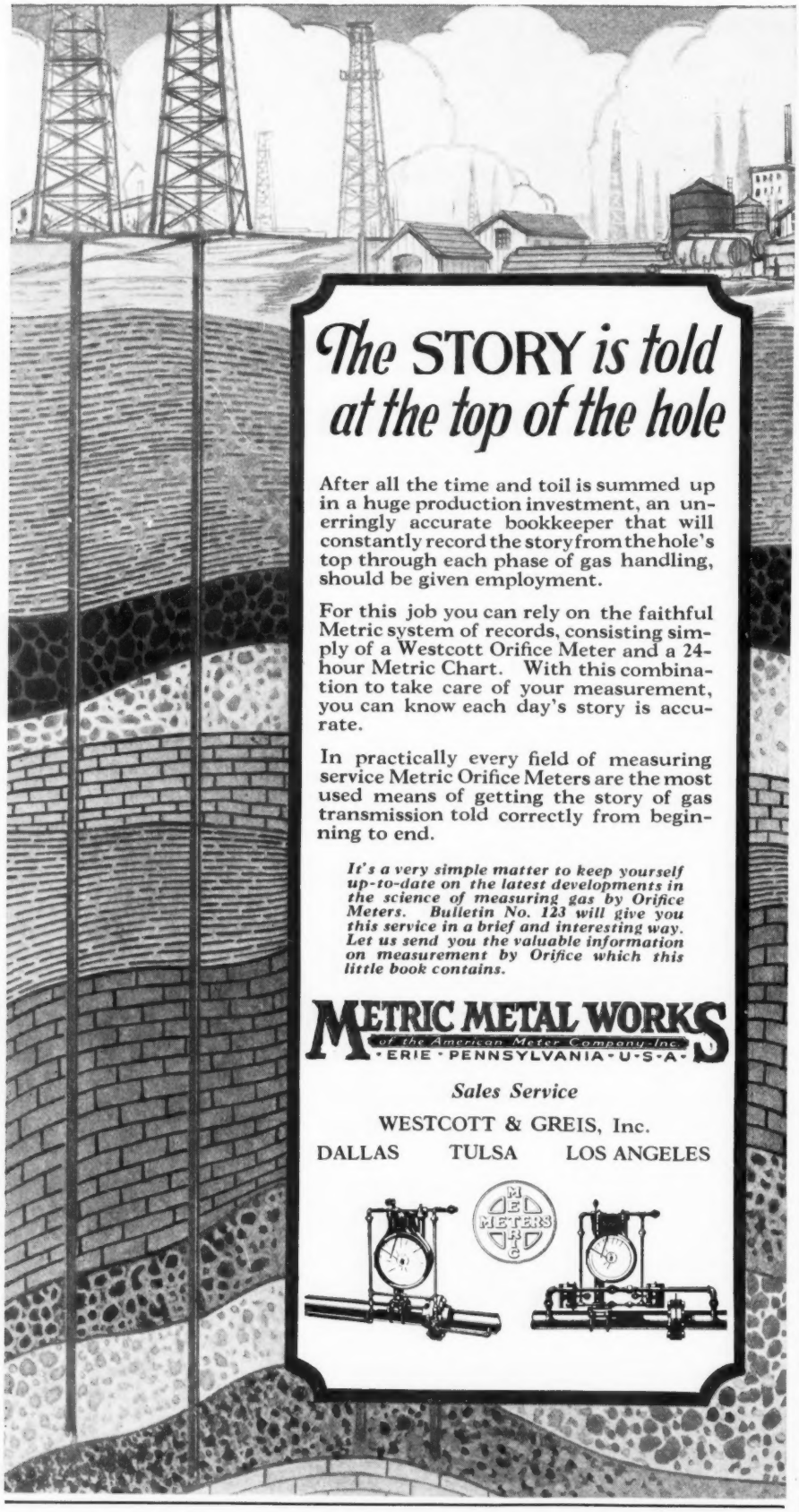
* * *

W. W. Wallace, division superintendent of Humble Oil & Refining Co., at Cisco, in the general Ranger territory, is the type of mixer who is favorably known wherever he goes. It probably would take a stranger several days to learn his name is Wallace and not "Wally," as all his friends know him. Mr. Wallace takes an active part in the work of the American Petroleum Institute division of Development and Production Engineering, missing few of its meetings in the Texas-Louisiana-Arkansas district.

* * *

R. W. Howe, operating head of the Atlantic Pipeline Co., with Dallas headquarters, moved to southwestern territory in 1922 from Philadelphia. He first located at Shreveport as manager of transportation and terminals of the crude purchasing department of Atlantic Oil Producing Co. Later, he moved to Dallas, thereafter having executive charge of the Atlantic's trunk pipeline system built in 1928 from Winkler county, West Texas, to a Gulf Coast terminal at Atreco, near Beaumont.

After his graduation from Cornell in 1908, Mr. Howe first engaged in work on the Tuscarora Pipeline Co. system across Pennsylvania. In 1909-1910 he helped build the Standard Oil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* * *

H. B. Fuqua, division chief geologist of the Gulf Production Co., at Fort Worth, succeeded to his present position when Ben C. Belt was transferred to Houston, last January, to conduct special work in the southwest. Mr. Belt now holds the position of chief geologist, made vacant at Houston when L. P. Garrett was elected third vice-president.

Other activities of special character supplement his regular duties. Mr. Fuqua was located at Wichita Falls, in the North Texas district, before his transfer to Fort Worth as Mr. Belt's assistant in the period prior to the changes noted.

* * *

Richard Florian, president and general manager of the Western Oil & Refining Co., Los Angeles, spent 10 years in Roumania as managing director of the Standard Oil Co. of New Jersey interests, operated as the Romano-Americana. After returning to the United States in 1916 he took part in war work, resumed petroleum activities and about 1923 formed the organization he now heads.

Western Oil & Refining Co., which has become an aggressive marketing factor in California, operates a refinery in the Los Angeles harbor district.

* * *

H. D. Coles, superintendent of the production and drilling department of the Mexican Gulf Oil Co., at Tampico, spent the month of June on a vacation in Texas and Louisiana.

* * *

W. H. Thompson of the Oil Well Supply Co., Pittsburgh, was discussing the value and importance of field records at a recent engineering conference in the southwest. "My experience in the field with drilling, and other reports," he said, "has shown that the simpler your report the better cooperation you will get from your men."

He quoted Charlie Rader of the Gulf Production Co., in North Texas, as having once said that he believed a driller was a very poor bookkeeper and also that a bookkeeper was a very poor driller. "You have the human element to consider, the roughneck driller," Mr. Thompson said, "and the less you put on the report the better off you are unless you have somebody sit on the floor of the derrick and make out drilling reports. Then you may have all the information you want. The easier and more simple you make that drilling report the better off you will be."

* * *

Although she has attained an age close to four-score years, Mrs. Lizzie H. Glide of Berkeley, deftly manages her vast California land holdings with the same business acumen for which

she has always been famous. Included in her property holdings are extensive leaseholds operated by the General Petroleum Corp., subsidiary of the Standard Oil Co. of New York, in the Mt. Poso oil field of the San Joaquin Valley.

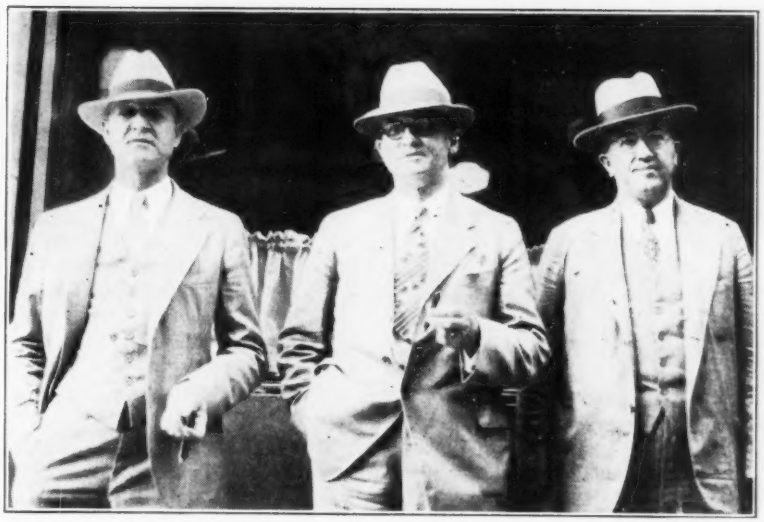
* * *

There and on the so-called Kern front, Mrs. Glide and her husband, the late J. H. Glide, bought for $2.50 an acre in 1889 the properties that have recently increased in value several thousand-fold because of oil discoveries. With the exception of one section, which was sold to the Union Oil Co. of California, the original 13,000 acres acquired by Mrs. Glide's late husband from the Southern Pacific Railroad Co. appear on the transfer books of the state of California only once.

That was when the railroad company acquired the acreage under deed from the United States government. Wells on the Glide property have been recently opened up, due to insistence of the royalty interest, but the fact that the production is relatively small in relation to the total California yield makes it of only minor importance in the present general curtailment program.

* * *

James Hutcheson, vice-president and general manager of the Rio Bravo Oil Co., Houston, appears in the center of the accompanying group picture, which also shows two of his principal lieutenants. They are S. T. Childress, left, and M. C. McDowell, right. Mr. Childress is a Gulf Coastal production superintendent with headquarters in Houston. Mr. McDowell has general supervision over production, embracing the Rio Bravo's entire operating territory.



Left to right: S. T. Childress, James Hutcheson and M. C. McDowell

Mr. Hutcheson has spent most of his time in the oil industry connected with one or another of the Southern Pacific interests, beginning about 20 years ago in California. About three years ago, when the Tide Water—Associated Oil Co. took over southwestern properties previously operated under the wing of the Southern Pacific, he was in charge of the Associated's activities in Texas.

That was the only break in Mr. Hutcheson's connection with the Southern Pacific from his beginning service with it until now. When John R. Suman resigned as vice-president and general manager of the Rio Bravo to become a director and general production executive of Humble Oil & Refining Co. Mr. Hutcheson returned to the Southern Pacific in his present capacity.

* * *

Stewart F. Magor is now vice president of the United Fuel Gas Co., the Virginia Gasoline & Oil Co., Warfield Natural Gas Co., and the Huntington Development & Gas Co. He was formerly assistant general manager of the United Fuel Gas Co., at Charleston, West Virginia.

* * *

This sage one from "Doings in General," house organ of the General Petroleum Corp., Los Angeles, is credited to Ed Foote:

"You can never tell the depth of a well from the price of the stock on the curb."

* * *

Dave C. Stewart, vice president of the Magnolia Petroleum Co., and manager of its pipeline department, is spending his annual vacation at Mt. Clemens, Mich.

* * *

P. S. Haury, petroleum engineer of the Simms Oil Co., formerly stationed at Midland, in West Texas, is now making headquarters at Shawnee, Okla., checking over production problems in the new Asher development area.

* * *

Ralph Dodds is now assistant to the zone agent of the Gulf Production Co., in the general Ranger territory, making headquarters at Eastland, Texas. He was formerly scouting in the Panhandle district, where he is succeeded by A. A. Kelly.

* * *

A. W. Peake, president of the Dixie Oil Co., Inc., direct producing subsidiary of Standard Oil Co. of Indiana, has returned to Shreveport headquarters after a business trip to New York and Chicago.

* * *

George Novak, assistant chief engineer, and Otto van Rossom of the geological department of the Mexican Gulf Oil Co., Tampico, started in June on a two months tour of the United States and Canada. They first flew from Tampico to Brownsville, where they took the train for Houston, New Orleans and Chicago, dividing at the last mentioned point for visits to relatives in New York and Detroit. Later they planned to follow the Canadian border to Seattle, passing down the Pacific Coast to Los Angeles, thence east and back to Tampico by Aug. 1.

* * *

Richard T. Lyons, land and geological vice president of the Skelly Oil Co., was graduated from the Massachusetts Institute of Technology with a degree of Bachelor of Sciences in 1917. After two years as a lieutenant of field artillery in the World war he was connected with the Sinclair Gulf Oil Co. (later Sinclair Oil & Gas Co.) in Ranger development days. Then he went to Venezuela for the Maracaibo Oil Exploration Co., returning to the Sinclair organization in 1921. After service with the Pure Oil Co., at Mexia, and later the Peer Oil Corp., at Tulsa, he joined the Skelly organization.

H. B. Fuqua

New Light Oil Field Is Indicated By Summerland Discovery

Staff Special

LOS ANGELES, July 5

AS A POSSIBLE menace to future production control in California, Lincoln Drilling Co. has discovered what appears to be a new light gravity oil field in the Summerland district, 5 miles east of the City of Santa Barbara.

Lincoln tapped the Vaqueros formation, the productive sand of the Elwood field, at 1045 feet and cored over 200 feet of solid oil sand before attempting a production test.

Summerland has been looked upon as practically a condemned area although a number of operators have continued to drill under the impression that the Coastal uplift would extend under this field. Previous production from the Summerland district has been limited to 14 gravity oil produced from an oil sand a few hundred feet beneath the surface.

A production test of the Lincoln well has been delayed while engineers made adequate precaution to cope with the very strong gas pressure found in the oil sand. Over 25 tons of hematite have been pumped into the hole to prevent a blow out as the well is situated on the shore of the Pacific Ocean and within a hundred feet of the state highway.

Discovery of an oil sand at such a shallow depth and of such a thickness, has caused many operators in that vicinity to push the drill with a hope that they may be on the verge of a like find.

Eight completions and seven recompletions in the Santa Fe Springs field added 43,250 barrels to production from the deep zones to give a new peak for those zones of 254,630 barrels. Total estimated production for the field was 277,100 barrels from 344 wells.

Twelve of the 15 completions during the past week were in the O'Connell zone, which now has 60 wells producing an average of 3441 barrels or a total of 206,485 barrels. It is estimated that production from Santa Fe Springs will exceed 300,000 barrels within the next few weeks through the completion of some of the 50 wells now in the O'Connell zone, 27 of which are drilling, 16 are cemented over and 7 are preparing to complete.

Shell Oil Co.'s Slusher No. 16 obtained a successful water shut-off over the Upper Clarke sand at 6839 feet. It is cemented in the thin layer of shale found between the O'Connell and Upper Clarke that had so many operators stopped several months ago. Rohde's Meyer No. 2 in the extreme eastern part of the field is the only other well to have secured a good cement job at this depth.

Lower Clarke production is expected to assume a place of importance in the drilling program at Santa Fe Springs as wells situated near the center of the field are deepened. Up to this time it is only those wells on the flank of the field, and which therefore, failed to penetrate the O'Connell or shallower sands, that have disclosed the possibilities of the sands that lie around 8000 feet in depth.

Since the discovery of the Clarke zones by Associated Oil Co.'s Clarke 2, several important additions have been made to production from those zones. Engineers were of the opinion that production from below 7600 feet would be rather light because of the lack of kick found at these depths but with the discovery of a saturated oil sand with a good gas pressure below 7900 feet the outlook brightened.

Slow Development Grounds for Damages

HOUSTON, July 5

CONSERVATION gained an ally in the Supreme Court of Texas when that tribunal handed down a decision that "failure to reasonably develop" makes a lease-owner liable for damages but does not provide grounds for the forfeiture or cancellation of his lease.

The principle of law was enunciated that the oil and gas lease ordinarily used in Texas (and elsewhere) is executed for the sole and only purpose of exploring for and producing minerals; and it conveys a determinable fee to minerals in favor of the lease.

Until the decision, which was handed down in a case styled W. T. Waggoner Estate against Sigler Oil Co., involving property in Wilbarger county, Texas operators had been compelled to drill acreage or forfeit leaseholds regardless of what surplus crude might result from development.

Under the present ruling an operating company is construed liable to pay to the owner of mineral rights such royalties as would have accrued had there been reasonable development; and, if the operating company paid such royalties on proper application to the courts, provision would be made whereby it could reimburse itself out of future production, thereby avoiding double payments.

"The requirement that lessee use reasonable diligence to explore for and produce the minerals is not a condition subsequent, but a covenant," said the opinion of Associate Justice Greenwood; "and failure of the lessee to reasonably explore the leased premises or to produce the oil when discovered does not give the lessor, the land owner, a right to forfeit and cancel the lease.

"If reasonable diligence were the test used to determine whether or not a lease is forfeited neither the lessee nor the lessor could ever know when the lease comes to an end. The lease can be forfeited and cancelled only when the lessee abandons the premises or fails to drill or produce oil as required by the lease, or ceases to use the land for the purpose defined in the lease."

Judge Greenwood cited earlier supreme court opinions holding that the ordinary lease vests in the lessee a defensive title to gas and oil in place, which title becomes absolute on discovery of such minerals in paying quantities.

"The lease," he said, "usually gives the lessee an option either to drill within a stipulated time or to defer drilling by the payment of annual rentals. The failure to drill or pay the rentals terminated the lease. But if a well was drilled within the time limit and oil produced in paying quantities the lessor cannot forfeit the lease unless the lessee abandons the premises, or refuses to explore or produce oil, or ceases to use the premises for the purposes for which the lease was executed.

"Should the lessor be damaged by failure of the lessee to reasonably explore the land, or to produce oil after it is found, the lessor can bring a suit for damages in a court of equity. If a lease fails to define the lessee's duty to develop the premises after the discovery of oil in paying quantities, the law implies an obligation upon lessee to explore, develop and produce with reasonable diligence."

General Petroleum Corp. obtained a fair well in the Lower Clarke, during the past week, when it completed its Jalk 112 for an initial production of 1823 barrels from a total depth of 8020 feet. Only 30 feet of formation was opened below the shoe which was set at 7990 feet.

Associated Oil Co.'s Clarke No. 2, the discovery well of the Clarke sand, is rapidly sanding up, making only 290 barrels of oil and has a cut of 65 per cent. At the time of completion, it was expected that the well would have to be recemented because the hole was left open from 7802 to 8165 feet, the present bottom, no attempt being made to obtain a water shut-off in the shale body found by Oscar Howard's Hathaway well at 7923 feet.

Practically all of the companies that had shut in their production in the Long Beach field have opened the valves again with the possible exception of Richfield Oil Co. There was no noted increase in the field's total through this abandonment of production control, for, although the daily average for that area showed an increase of 2100 barrels for week ending July 5, it may nearly all be accounted for by several new completions.

Total production from 887 wells in the Long Beach field was up to 180,000 barrels of which 128,751 barrels was produced from 380 wells in the deep zones. Shell Oil Co.'s Nesa well is coring at 8798 feet in hard shale, gray sand and has encountered a few thin streaks of oil sand.

San Joaquin Valley came in for its share of attention with the report that a new oil sand had been discovered west of Kern River at a depth of 1395 feet. The strike was made by two Independent operators, L. C. Gould and Walter Gatton of Los Angeles, in their well situated in Section 36-28-27. The well previously produced 12 to 14 gravity oil from the overlying oil sand found at 1100 feet, whereas the new sand is reported to contain oil of a slightly higher gravity.

Heavy gas pressure continued to hold up progress in Standard Oil Co.'s Well No. 81, the deepest drilling well in the North Dome of Kettleman Hills. The drill is below 6500 feet in hard shale containing streaks of grey sand that have a faint odor of oil. Several other wells are struggling ahead in the hard formation that separates them from the rich oil sand found by Milham Exploration Co. in the lower Temblor horizon.

General Petroleum Corp. is now swabbing for another production test of its Ochsner No. 2, in the Kettleman Hills area. All but about 200 feet of the drill pipe, which froze several weeks ago and has since resisted all efforts to loosen it, has been removed and company officials hope that another flow test will loosen the bit.

Completions in Oklahoma and Kansas, Week Ended July 6, 1929

Company	Well No.	Location	Depth	Init. Prod.
Beckham County				
Benedum-Trees	1	SWc 30-8-25 W	T.D. 2305	Dry
Carter County				
Magnolia	1	NW NE NE 4-2-3 W	T.D. 4605	Dry
Magnolia	9	SWc NW 13-1-4 W	2900-3108	150
Cherokee County				
Shell	1	NWc NE 25-16-19 E	T.D. 617	Dry
Cotton County				
Cullum-Perkins	1	SE NE NE 4-2-10 W	T.D. 2263	Dry
Heydrick et al	1	Bu SWc SE 3-1-10 W	T.D. 2303	Dry
Creek County				
Hammon et al	1	NEc NW 10-16-10 E	T.D. 3015	Dry
Abbott et al	1	NEc SW 12-19-9 E	T.D. 2736	Dry
Tibbens	6	NWc NE SE 31-15-9 E	2297-2357	5
Blackwell	11	NEc SE SW 17-17-7 E	2664-2777	60
Texas	3	SEc SW SE 16-17-7 E	2756-2835	15
Magnolia	7	CEL SE SE 32-18-7 E	2260-2658	10
Custer County				
Head et al	1	SWc SE 10-12-17 W	T.D. 353	Dry
Grant County				
Cons. Utilities	1	NWc 24-26-3 W	T.D. 4862	Dry
Boucher et al	1	SWc SE 1-27-3 W	T.D. 4585	Dry
Haskell County				
Holden	1	SEc 3-9-18 E	1670-1700	.1M
Hughes County				
Indep.-Kingwood	1	SW SE SE 6-8-9 E	3608-3615	11M
Independent	1	NEc NW 7-8-9 E	3559-3581	6M
Indep.-Gypsy	1	NEc SW 7-8-9 E	3564-3569	28M
Steckleburg	1	C NE NE 11-9-10 E	T.D. 1210	Dry
Jefferson County				
Johnson et al	1	SEc NW 10-4-8 W	T.D. 3007	Dry
Kay County				
Royal	1	C SE NE 12-28-1 W	T.D. 1040	Dry
Industrial	1	SEc NW 35-28-1 W	783-785	¼M
Lincoln County				
Texas Pacific	1	NWc 19-16-5 E	T.D. 4600	Dry
Muskogee County				
Metzger	9	CWL SE SW 1-14-18 E	T.D. 985	Dry
Kimsey	1	NWc SE NW SE 24-15-17 E	T.D. 2285	Dry
Cherokee Public Service	2	SWc NW 10-15-17 E	T.D. 1291	Dry
Price	4	CSL SW SW 20-15-16 E	T.D. 1340	Dry
Betz Trustee	1	CNL NW NW 7-15-15 E	T.D. 1767	Dry
Johnson et al	1	SEc 13-13-18 E	714-725	1.5M
Mazda	1	NEc SE NW 8-13-16 E	1637-1650	75
Musselman	1	SWc 34-14-19 E	1470-1484	1M
Okfuskee County				
Mid-Continent	1	SWc NE NE 31-11-11 E	3082-3090	24M
Misener-Kingwood	2	SEc SW NW 12-10-11 E	1570-1590	25
Wallace	7	C SW NE 14-14-14 E	1054-1072	40
Buzzard	1	NWc SE NW 32-15-13 E	1994-2050	3M
Howard	1	CEL W½ SE SW 17-13-14 E	T.D. 650	Dry
Tiger Mountain	4	CSL NE SE 2-13-14 E	T.D. 2008	Dry
Kessler	4	CNL NW NW 16-14-14 E	T.D. 1285	Dry
Denton-Marshall	1	NEc SE SW 25-15-14 E	T.D. 1615	Dry
Scott-Schaffer	1	SWc SE 10-14-12 E	T.D. 2653	Dry
Osage County				
Carter	1	SE SW NW 34-26-6 E	2862-2884	40
Pawnee County				
Gled	1	NW NE NE 25-21-7 E	2675-2752	80
Payne County				
Gardner et al	1	C SW NW 13-19-1 W	T.D. 4837	Dry
Pontotoc County				
Westheimer-Daube	1	SE NW NW 10-4-7 E	T.D. 4132	Dry
Superior	4	NW SW NW 32-5-5 E	2448-2586	100
Pottawatomie County				
Mid-Continent	3	SE SW SW 5-9-5 E	4309-4326	1675
Magnolia	1	SEc NW 20-8-5 E	4720-4747	60
Independent	1	NWc 16-7-4 E	4012-4071	3780
Slick	1	NW SW NW 20-6-4 E	3630-3700	205
Slick	1	SW NW NW 20-6-4 E	3678-3733	540
Superior	1	NE NW NW 13-8-4 E	T.D. 4512	Dry
Reynolds	1	SEc SW SW SE 18-6-4 E	T.D. 4090	Dry
Seminole County				
Twin State	3	NE SE NE 12-8-5 E	T.D. 4408	Dry
Magnolia	1	NEc SE 34-6-7 E	T.D. 4722	Dry
Carter	1	SEc NE 10-9-6 E	4198-4215	160
Carter	1	NE NW SW 11-9-6 E	4132-4146	1745
Shaffer	4	SE NW NE 12-8-5 E	4110-4155	55
Gypsy	10	SE SW SW 23-7-6 E	3112-3162	25M
Gypsy	11	SW SE SW 23-7-6 E	3160-3184	40M
Gypsy	13	SE NE SW 23-7-6 E	3115-3152	37M
Gypsy	14	NE NW SW 23-7-6 E	3168-3180	25M
Mid-Continent	3	NW NE SE 23-7-6 E	3140-3166	18M
Magnolia	4	SE SW NW 17-5-8 E	2583-2625	225
Stephens County				
Clark-Cowden	4	NWc SW 13-1-4 W	2792-2944	120
Ellis Drlg.	3	SEc SW NW NW 25-1-9 W	T.D. 2335	Dry
Smythe et al	1	C NE NE 27-2-6 W	T.D. 2603	Dry
Tillman County				
Franklin	1	C NW 25-1-15 W	T.D. 3501	Dry
Tulsa County				
Mitchell County	1	SEc SW NE SE 1-18-12 E	T.D. 2037	Dry
Sherman	1	NEc NW NW 9-16-14 E	T.D. 2108	Dry
Wagoner County				
Gleason	6	CNL SE NW SW 29-18-15 E	T.D. 1665	Dry
KANSAS				
Barber County				
Rowland et al	1	NE NW NE 27-30-14 W	T.D. 4718	Dry
Butler County				
Slick-Connell et al.	1	NW SE NW 14-27-5 E	T.D. 2737	Dry
Smith-Ash	1	NEc 8-24-6 E	T.D. 3138	Dry
Empire	9	SW NW SE 22-27-5 E	2701-2745	200
Lario	1	SWc 10-26-3 E	2760-2765	400
Allison-Fitz-williams	3	SW NE NE 28-25-4 E	2554-2644	20
Chautauqua County				
Syndicate	1	SW NW NE 1-32-8 E	T.D. 2699	Dry
Edwards County				
Amerada	1	C NW SW 32-25-19 W	T.D. 5255	Dry
Ellis County				
Twin Drlg. et al	1	NEc SE 12-13-16 W	T.D. 3440	Dry
Harper County				
Amerada	1	C SE SE 24-34-6 W	T.D. 5452	Dry
Osborne County				
Empire	1	SEc NE 30-9-14 W	T.D. 3775	Dry
Ottawa County				
Anderson et al	1	NEc NW 28-10-2 W	T.D. 3755	Dry
Russell County				
Phillips	1	SEc NW 32-12-14 W	T.D. 3410	Dry
Sedgwick County				
Bu Vi Bar et al	5	NEc SW 6-26-1 E	T.D. 3426	Dry
Bu Vi Bar et al	2	NEc SW SE NW 6-26-1 E	T.D. 3511	Dry
Morgan et al	1	SWc NE 28-25-1 W	T.D. 3825	Dry
Gypsy	3	SW NW SW 14-26-2 E	3200-3205	170
Bu Vi Bar et al	6	NE SE SE 1-26-1 W	3366-3375	650
Bu Vi Bar et al	6	NE NW NW 7-26-1 E	3362-3370	1275
Bu Vi Bar et al	3	NE SW SW 6-26-1 E	3375-3379	700
Derby	2	NE NW SW 6-26-1 E	3376-3378	600
Gypsy	1	SWc NW 14-26-2 E	3163-3167	1675
Bu Vi Bar et al	3	SE NE SE 1-26-1 W	3364-3371	1365
Bu Vi Bar et al	4	NE NW SE 1-26-1 W	3350-3361	1050
Davis-Skelly et al	8	SE SW NE 1-26-1 W	3367-3372	1250
Derby	4	NWc SW NW SW 6-26-1 E	3362-3367	625
Tidal	3	SWc NW 6-26-1 E	3367-3371	240
Bu Vi Bar et al	1	NWc NE NW NE 7-26-1 E	3388-3391	70
Shell	1	NEc SE 15-26-2 E	3199-3203	785
Bu Vi Bar et al	2	NW NE SE 1-26-1 W	3356-3364	1050
Aladdin	2	SW NW SW 6-26-1 E	3370-3376	650
Bu Vi Bar et al	2	SW NW SW 6-26-1 E	3365-3369	950
Smith County				
Mid-Kansas	1	NEc 4-2-13 W	T.D. 4099	Dry

Completions in California, Week Ended June 29, 1929

Long Beach

Company	Well No.	Location	Depth	Init. Prod.
Dabney-Johnson Oil Corp.	No. 12	....	6965	125
Lyons & Bordeaux	Burman-Green No. 1	...	6745	150
Pan-Cal. Oil Co.	No. 3	....	7250	2250
Rio-Grande Oil Co.	Rainbow 6	....	6856	400
Vista Pet. Co.	No. 2	....	6700	400
Santa Fe Springs				
Bellview Oil Co.	Grohs 3	....	6300	4400
General Pet. Corp.	S. F. S. 222	....	5495	350
General Pet. Corp.	S. F. S. 160 B	....	6580	1200
General Pet. Corp.	Jalk 114	....	7750	325
Oscar Howard	Hathaway No. 6	....	8006	2000
Standard Oil Co.	Walker 11	....	6825	8186
The Texas Co.	Matern 3-11	....	6900	3520
The Texas Co.	Mutual 2	....	6698	450

Seal Beach

Company	Well No.	Location	Depth	Init. Prod.
Standard Oil Co.	San Gabriel No. 21	....	5417	700
Ventura Avenue				
Shell Oil Co.	Gosnell No. 30	....	7517	250
Maricopa Flats				
Signal Oil & Gas Co.	Sheehan No. 3	....	3240	1168
Fruitvale				
Standard Oil Co.	K. C. L. 5-2	....	4778	200
Belridge				
Ohio Oil Co.	Belridge 26	....	735	20
Mt. Poso Creek				
Pet. Securities Oil Co.	Glide No. 15	....	1870	Shut-in
The Texas Co.	Alta Vedder 2	....	1697	307

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended July 6, 1929

OKLAHOMA

Carter County

Company	Well No. & Farm	Location
Arclow	1-Cruce	NWc SE 35-4-2 W
Ven-Mex	1-Dixon	SEc NW 30-1-3 W
Cotton County		
Baldwin-Sultan	1-Rhone	NWc SE SE 35-1-10 W
Moore et al	4-Chambers	NEc SE SE NW 2-2-10 W
Silurian	3-Chambers	NEc SE NW NW 2-2-10 W
Creek County		
Jackson-Wise	10-Grayson	CWL SW SW 3-15-11 E
Hull	1-Davis	NEc SE SE 11-17-11 E
Texas Pacific	8-Harjoche	SWc SE NE 21-17-9 E
Texas	9-Derrisaw	NEc SW SW 6-17-7 E
Silurian	26-Starr	NEc SE NE NE 17-18-7 E
Bay State	18-Thilloco	SWc SE NW 9-18-7 E OWD
Magnolia	26-Musselman	NEc SW SE 8-18-7 E OWD
Superior	1-Holmes	SEc NE SE 17-19-9 E
Garvin County		
Texas Pacific	1-Jones	SEc SW 18-1-2 W
Haskell County		
Holden	2-Phillips	CNL SW SE SE 3-19-18 E
Kiowa County		
Ruhl	1-Ditmar	NWc NE SE 19-6-16 W
Alexander et al	2-Ditmar	NEc NW SW SE 18-6-16 W
Latimer County		
Cochran et al	1-Cushing	NWc SE SE 36-7-22 E
LeFlore County		
Red Bank	1-Fee	SE SW NW 23-9-24 E
Muskogee County		
Johnston et al	2-Smith	NWc SE SE 13-13-18 E
Decius-Garrett	1-Sewell	SWc SE 17-13-17 E
Robinson Bros.	3-Lewis	NWc SW NE 8-12-16 E
Mazda	2-Jackson	CEL SE NW 8-13-16 E
Lyon et al	1-Dean	NWc SW NE 23-14-17 E
Foltz et al	1-Grimmett	SEc NE 9-15-17 E OWD
Jolly-Stone	1-McDaniel	CSL SE SW 23-16-15 E OWD
Okfuskee County		
Champlin	1-Carter	SEc SW 15-11-11 E OWD
Umburn et al	2-Robinson	SWc 1-10-11 E
Umburn et al	1-Barnett	CEL NE NW 3-10-11 E
Okmulgee County		
Rebold	6-Hardridge	SWc SE NE 27-13-14 E
Kessler	5-Colbert	C NW NW 16-14-14 E
Wallace	8-Colbert	C SW NE 14-14-14 E
Misener	2-Colbert	CEL SE NW 14-14-14 E
Machlin-Berlin	8-Colbert	CEL SE NE 14-14-14 E
Denton-Marshall	1-McKinney	NEc NW 16-15-14 E OWD
Edgerly et al	1-Brown	NEc SE 28-15-13 E
Osage		
Phillips	17....	NWc SE NW 23-27-5 E
I. T. I. O.	413....	SE NE SE 6-25-11 E
Tidal	6....	SE NW SE 20-24-9 E
Peters	3....	NWc NE SW 32-24-9 E
Midco	1....	NEc NW 13-22-9 E
Moore Est. et al	2....	SW NW NE 16-21-9 E OWD
Pawnee County		
Jackson et al	7....	NE SW NW 25-20-9 E OWD
Bartlett	1-Martin	NE SE SE 15-20-9 E
Payne County		
Wheeler-Mote et al.	1-McLaughlin	SEc NW NW 7-17-5 E
Pittsburg County		
Galbreath	1-Snyder	C W½ SW 28-4-13 E
Quinton Relief	1-Houston	C SW SE 9-7-18 E
Pontotoc County		
Denver Prod. & Ref.	2-Roberts	NE SE NE 36-5-4 E
Pottawatomie County		
Empire et al	1-Keys	SEc 6-9-5 E
Flake	1-Reade	SEc NW NW 8-9-5 E
Flake	1-Townlot	NE SE NW 8-9-5 E
Phillips	1-Weldfield	NWc 26-8-4 E
I. T. I. O.	2-Shobe	SW SE SE 35-8-4 E
Empire	1-Jackson	SW SE SW 36-8-4 E
Wilcox	7-Smith	SW NE SE 8-8-5 E
Wilcox	8-Smith	SE NE SE 8-8-5 E
Shell	1-Jordan	SWc NW 9-8-5 E
Moore	1-Fundis	SEc NE 19-7-3
Independent	3-Borrows	NE NW NW 1-7-4 E
Indep.	4-Borrows	NW NE NW 1-7-4 E
Magnolia	1-Jones	NW NE SE 8-7-4 E
Magnolia	2-Jones	NE NW SE 8-7-4 E
Atlantic-Champlin	1-Bewley	SE NW SE 9-7-4 E
Magnolia	1-Tarter	SW NW SW 15-7-4 E
Magnolia	2-Richardson	SWc 15-7-4 E
Darby	6-Youngblood	NW SE NW 16-7-4 E
Slick-White Eagle	2-Latimer	NE SW NW 16-7-4 E
Independent	2-Pappan	16-7-4 E
Indep.-Darby	1-Curly	NW SE NW 22-7-4 E
Simms	1-Pappan	NW NE NE 29-6-4 E
Seminole County		
Barnsdall	5-Hotulke	NEc SE 22-7-6 E
Gypsy	17-Cotcha	SW NE SW 23-7-6 E
I. T. I. O. et al	1-Chatkey	SWc NE 12-10-6 E
Magnolia	2-Moore	NEc SE 24-9-5 E
Gypsy	2-Payne	NEc SE 18-9-6 E
Magnolia	6-Anderson	NW SW NE 18-9-6 E
Magnolia	5-Anderson	SEc NE 18-9-6 E
Barnsdall	1-Dixon	NE NW SW 18-9-6 E
Magnolia	7-Anderson	NW NE SW 18-9-6 E
Marland	1-Smith	SE SW NW 18-9-6 E
Carter et al	1-Amerada	SW NW SE 11-9-6 E
Sinclair	2-Coody	NW SW NE 18-9-7 E
Continental	4-Johnson	NE SE NW 18-9-7 E
Continental	3-Johnson	NW SE NW 18-9-7 E
Sinclair	2-Johnson	NE SW NW 18-9-7 E
Sinclair	3-Coody	SE SW NE 18-9-7 E
Sinclair-Gypsy	1-Okfuskee	SW NW NE 18-9-7 E
Sinclair	1-Johnson	SE NE NW 18-9-7 E
Magnolia	2-Reed	SWc NE 4-8-7 E
Gypsy	18-Cotcha	NWc SW 23-7-6 E
Texas	6-Hotulke	SWc NW 23-7-6 E
Stephens County		
Sykes-Fossett	1-Blake	NWc NE SW 16-1-8 W
Winkler et al	6-Springer	SEc NW SE NW 28-1-8 W
Huff-Duff	6-Burke	SWc NE 34-1-8 W
Lone Eagle	12-Simpson	NEc NW SE 34-1-8 W
Murphy	16-Fobb	SWc SE NW SW 12-2-8 W
Magnolia	5-Marks	NEc SE 13-2-8 W
Wagoner County		
Ash Bros.	1-Childers	NEc NW 22-18-17 E
Midco	2-Drew	SEc SW 15-18-17 E
Ash Bros.	1-Love	SEc NE SW 15-18-17 E
Martin et al	2-Drew	NEc SE SW 26-18-15 E

KANSAS

Barber County

Company	Well No. & Farm	Location
Skelly	1-Skinner	SWc NE 13-34-15 W
Butler County		
Sinclair	1-Johnson	NEc 16-26-3 E
Arkansas Nat. Gas	1-Campbell	SEc 9-26-3 E
Ellis County		
Phillips	2-Shutts	SWc NE 5-12-17 W
Phillips	1-Weiger	NEc 19-12-17 W
Davis et al	3-Weiland	SE NE NE 1-13-16 W
Barnsdall	1-Johnson	NEc SW 9-13-19 W
Greenwood County		
Mendenhall-Son	1-Hollister	NEc SW 9-25-13 E
Mid-Continent	4-Geise	SW SE NE 13-24-12 E
Simmons-Amerada	8-Ellis	SW NE SW 26-23-11 E
Smith-Polhamus	1-Cook	SEc NW 10-24-10 E
Christy-McCullouch et al.	1-Lewis	NW NE SW 25-27-8 E
Harper County		
Slick et al	1-Greisinger	SEc 13-34-8 W

(Continued on Page 55)

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended July 6, 1929

(*Continued from Page 54*)

Lyon County

Company	Well No. & Farm	Location
Blair	1-Martindale	NW NE NE 27-21-11 E

McPherson County

Perry et al	1-Wade	C SE 20-19-4 W
Lario	1-Diener	SEc SW 10-20-1 W

Rice County

Milmac et al	1-Kane	C SE 29-19-7 W

Russell County

Texas	2-Leonard	SW NW NW 6-13-15 W

Sedgwick County

Wentz	3-Bright	NE SE NW 1-26-1 W
Wentz	2-Bright	SEc NW 1-26-1 W
Davis-Skelly	10-Wilson	NW SW NE 1-26-1 W
Bu Vi Bar	3-Reed	SW SE SE 1-26-1 W
Bu Vi Bar	2-Reed	NW SE SE 1-26-1 W
Bu Vi Bar	5-Carr	NWc SE 1-26-1 W
Patton-Wentz	1-Duncan	NEc NW 6-26-2 E
Ramsey et al	2-Mason	NEc SE SW SW 15-26-2 E
Barnsdall	1-Rapp	NE NW NW 22-26-2 E
Bu Vi Bar et al	8-Carr	SW NE SE 1-26-1 W
Davis-Skelly	12-Wilson	NW SE NE 1-26-1 W

Sumner County

Mid-Continent	1-Clark	SEc 31-34-3 W

Tergo County

Day et al	1-Gugler	SW NE NE 36-12-21 W
Mid-Kansas	1-Ridgeway	NEc SW 28-12-21 W

TEXAS

NORTH CENTRAL AND EAST CENTRAL

Anderson County

			Survey
Humble	3-Todd Est.	....	Clark

Brown County

Cross Cut	1-Nunn	....	Crump
Lloyd	21-Collier	Blk-139	Smith
Beall-Gulley-Michael	1-Armstrong	Blk-1	H&GN
Cen Tex	2-Bull	Blk-623	Honeycutt
Owens et al	1-Cannon	Blk-3	Arenback
Bearman et al	5-Spencer	....	Swindle
Traxel et al	1-McDonald	Blk-60	Carrier
Baker Bros	2-White Heirs	Blk-623	Honeycutt
Williams et al	1-Eddington	Blk-141	Mitchell
Anderson	5-Leatherwood	Sec-11 Blk-789	Delgado
Mitcham	2-Keeler	Sec-39	HT&B

Coleman County

Jackson	1-Dancy	Blk-258	Luckenback
Humphreys Bros. et al.	1-Oliver	Sec-62	Oliver
Dallas	5-Babbington	Blk-80	Rose

Jack County

Osage	1-Ewman	....	Overly
Security Drlg	2-Shanafelt	....	Hughson
Fluty et al	2-Maxey	Sec-2	SP

Jones County

Adset et al	1-Swenson	Sec-193	BBB&C
Texas Pacific	1-Smith	Sec-51 Blk-18	T&P
Grisham-Hunter	2-Tiner	Sec-279	Zumalt
Clark et al	1-Newman	Sec-52 Blk-18	T&P
Shaheen et al	1-King	Sec-197	Bueno

Palo Pinto County

Comanche	1-Smith	Sec-1727	TE&L

Shackleford County

Shulman et al	1-Green	Sec-1548	TE&L
Shaheen et al	1-Whitney	Sec-8	HT&B
Simms	1-Dyer	Sec-63 Blk-11	T&P
Roeser-Pendleton	13A62-Cook	Sec-62	ET
Gibson-Johnson	1-Bowman	Sec-80 Blk-12	T&P
Vacuum	4-Mathews	Sec-29	ET
Vacuum	5-Mathews	Sec-29	ET
Wade et al	1-Lannon	....	King
Hughes	4-Diller Bros.	Sec-4	Arenback

Stephens County

Bateman et al	1-Manning Heirs	Sec-42 Blk-4	T&P
Lone Star	2-Brooks	Sec-54 Blk-7	T&P
Lone Star	1-Galloway	Sec-461	SP
Texas Pacific	4-Pierce	Sec-45 Blk-6	T&P

Throckmorton County

Woodson	3-Overcash	Sec-960	TE&L
McCurdy et al	1-Reynolds L & C. Co.	....	Lambshead

NORTH TEXAS

Archer County

Brown-United Prod.	4-Taylor	Sec-17 Blk-11	ATNCL
Fain-McGaha	5-Taylor	Sec-17 Blk-11	ATNCL
Fain-McGaha	4-Taylor	Sec-17 Blk-11	ATNCL
Gywnn-Archer Drlg.	2-Thompson	Sec-20 Blk-15	ATNCL
Gwynn	4-Thompson	Sec-20 Blk-16	ATNCL
Shappell	7-Lyles	Sec-7	Hooper et al.
Burns et al	1-Wilson	Sec-94 Blk-2	ATNCL
Burns	2-Wilson	Sec-114 Blk-4	ATNC:
Clark-Kruger	1-Durham	Sec-7 Blk-52	Harris
Long et al	5-Farmer	....	Winters
Freeman-Grebiu	6-Hennig	Blk-21	Meade
Humble et al	3-Logan	Blk-26	Taylor
Bridwell	1-Falls Co. Sch. Ld.	Blk-8	FCSL
Humble et al	10-Logan	....	Armes
Pet. Prod	5-Kunkel	Sec-3	BBB&C
Pet. Prod	4-Kunkel	Sec-3	BBB&C
Moran Drlg.-Ruff	1-Richardson	Sec-11	BBB&C
Kemrow	7-Campbell	League-3 Blk-1	DCSL
Johnson et al	1-Matthews	....	Ostane
Texas	1-Wilson	Blk-151	Simmons
Young	1-Fee	....	Pickens
Parsons et al	1-Herring	Blk-17	Herring
Rogers et al	1-Garvey	Sec-1859	TE&L
Smith	5-Prideaux	Sec-1860	TE&L
Bradstreet	1-Wilson	Blk-27	Toby

Cooke County

Benson Bros. et al.	1-Hess	....	Burdette
Faith	1-Tomlinson	....	Trevine
Hoosier et al	1-Deering	....	Hamilton
Benson Bros	2-Kamp	....	Burdette
Humble	3-Poteet	....	Stephens

Wichita County

Panhandle	7-A-Waggoner	....	Meade
Ven Mex-Hines	1-Wag. Bros.	Blk-4	GC&SF
Hunter	3-Wag. Bros.	Blk-1	George
Golding-Cochran	5-M-Wag. Bros.	Blk-22	George
Fain-McGaha	1-Pettit	Sec-20 Blk-7	H&TC
Unit Prod. et al	2-Allen et al.	Blk-28	KWVFL
Comac Drlg. et al.	1-Overly	....	Sharp
Bradstreet	1-Denny	....	Balch
Barkley-White	1-Hoge	Blk-38	KWVFL
Hunter et al	1-Frieberg	....	Hastie
Riner-Bailey	8-Michie	....	Netherly
Stumpf-Empire	1-Anderson et al.	Blk-56	KWVFL

Wilbarger County

Staley-Wynne	G-8-Waggoner	Sec-32 Blk-4	H&TC
Staley-Wynne	G-9-Waggoner	Sec-32 Blk-4	H&TC
Staley-Wynne	G-10-Waggoner	Sec-32 Blk-4	H&TC
Texas	E-18-Waggoner	Sec-25 Blk-4	H&TC
Texas	P-1-Waggoner	Sec-1	SP
Waggoner	J-5-Waggoner	Sec-25 Blk-4	H&TC
Waggoner	J-6-Waggoner	Sec-25 Blk-4	H&TC
Waggoner	M-1-Waggoner	Sec-32 Blk-4	H&TC
Waggoner	M-2-Waggoner	Sec-32 Blk-4	H&TC
Waggoner	M-3-Waggoner	Sec-32 Blk-4	H&TC
Consolidated	0-5-Waggoner	Sec-40	MEP&P
Empire	C-8-Waggoner	Sec-25 Blk-4	H&TC
Empire	C-9-Waggoner	Sec-25 Blk-4	H&TC
Fain-McGaha	Y-3-Waggoner	Sec-43	MEP&P
Grayback Dev	1-Waggoner	Sec-40	MEP&P
Golding-Cochran	K-1-Waggoner	Sec-4 Blk-17	H&TC
Kenney	1-Waggoner	Sec-3 Blk-4	H&TC
Peckham	A-2-Waggoner	Sec-21 Blk-4	H&TC
Peckham	B-1-Waggoner	Sec-36 Blk-4	H&TC
Phillips	DD-4-Waggoner	Sec-42 Blk-4	H&TC
Phillips	GG-3-Waggoner	Sec-43 Blk-4	H&TC

Young County

Mont.-Jones	2-Keen	Sec-3401	TE&L
Texas	2-Petty	....	BBB&C
Brihill-Bradstreet	1-Self	....	Rohus
Wise-Jackson	1-Stewart	Blk-27	YCSL
Bridwell-Clark	2-Cullers	Blk-25	YCSL
Cont.-Burton	1-Morrison	Sec-3401	TE&L
Robertson Drlg	7-Gilmore	Blk-14	YCSL
Kleiner et al	31-Langston	Sec-1490	TE&L
Bratcher	9-Edwards	....	Tynes
Hinson-Tidwell	1-Perkins	Sec-20	Mitchell

PANHANDLE

Gray County

Mordyan	2-Davis	Sec-8 Blk-1	ACH&B
Dunlap	2-Morse	Sec-2 Blk-1	ACH&B
Midwest Explor	2-Bowers	Sec-93 Blk-B-2	H&GN
Phillips	2-Jackson	Sec-88 Blk-B-2	H&GN

Hutchinson County

Gulf Prod	46-Dial	Sec-26 Blk-47	H&TC
Phillips	1-Johnson	Sec-1	Williams
Midwest Explor	2-Moore	Sec-125 Blk-4	I&GN

Wheeler County

Upham	1-Shelton	Sec-22 Blk-24	H&GN
Johnston-Wishkamper	1-West	Sec-30, Blk-17	H&GN
Johnston et al	1-Hall	Sec-49 Blk-17	H&GN
Martin-Debons	1-Hasher	Sec-69 Blk-17	I&GN

WEST TEXAS

Crane County

Humble	1-Univ.	Sec-34 Blk-30	Univ.
Duffey-Skelly	1-Univ.	Sec-45 Blk-30	Univ.
Tidal	2-E-Univ.	Sec-39 Blk-30	Univ.

Crockett County

Taylor-Link	3-Powell	Sec-52 Blk-BB	GCSF

Glasscock County

A. F. Oil Co	1-Turner	Sec-19 Blk-33	T&P
California	1-Turner	Sec-46 Blk-33	T&P

Howard County

Amerada	11-Roberts	Sec-128 Blk-29	W&NW
Amerada	2-Stewart	Sec-130 Blk-29	W&NW
Marland	5-Chalk	Sec-124 Blk-29	W&NW
Moody	15-Roberts	Sec-136 Blk-29	W&NW
Moody	16-Roberts	Sec-136 Blk-29	W&NW
Owens-Sloan	11-Roberts	Sec-136 Blk-29	W&NW
Sweeney et al	4-Chalk	Sec-124 Blk-29	W&NW

Nolan County

Gibson-Johnson	1-Boyd	Sec-42 Blk-20	T&P

Pecos County

Shell	4-D-Smith	Sec-24 Blk-194	TC
Shell	10A-Smith	Sec-27 Blk-194	TC
Mid-Kan.-Transc	31-A-Yates	Sec-34½	Vacancy strip
Mid-Kan.-Transc	10-H-Yates	Sec-32 Blk-194	TC
Mid-Kans.-Transc	2-E-Yates	Sec-59 Blk-1	I&GN
Mid-Kans.-Transc	30-A-Yates	Sec-34½	Vacancy
Gulf Prod	19-A-Smith	Sec-28 Blk-194	TC
Humble	6-B-Smith	Sec-101	TC
California	13-Smith Lease-3	Sec-35 Blk-194	TC

Reagan County

Big Lake	167-Univ.	Sec-1 Blk-2	Univ.
Big Lake	168-Univ.	Sec-1 Blk-2	Univ.
Big Lake	173-Univ.	Sec-1 Blk-2	Univ.
Big Lake	169-Univ.	Sec-36 Blk-1	Univ.
Big Lake	170-Univ.	Sec-1 Blk-2	Univ.
Big Lake	171-Univ.	Sec-12 Blk-2	Univ.
Big Lake	172-Univ.	Sec-1 Blk-2	Univ.

Upton County

Dixie	30-Burleson	Sec-2	Nidiver

Ward County

Atlantic-Delmar	3-Hazlett	Sec-17 Blk-5	H&TC

Winkler County

Skelly	3-Daugherty	Sec-22 Blk-26	PSL
Skelly	4-Daugherty	Sec-22 Blk-26	PSL
Skelly	5-Daugherty	Sec-22 Blk-26	PSL
Southern Crude	T88U10-Hendricks	Sec-41 Blk-26	PSL

Completions in Texas, Week Ended July 6, 1929

NORTH CENTRAL AND EAST CENTRAL

Anderson County

Company	Well Farm	Survey Sec. & Blk.	Depth	Init. Prod.
Humble	2-Todd Est.	Clark	T.D. 3900	Dry

Brown County

Bowers	4-Canar	Perry Sec-6	T.D. 1554	Dry
Campbell et al	2-Turner	HT&B Sec-61	T.D. 800	Dry
Green	1-Henderson	Henderson Blk-4	T.D. 1070	Dry
Green et al	1-Barnes	Johnson Sec-5 Blk-106	T.D. 220	Dry
Lloyd	1-Collier	Smith Blk-139	T.D. 1481	Dry
Mattocks et al	1-Sanderson	James Blk-121	T.D. 1565	Dry
Spruce	1-Brown	Kerr Co. Sch. Ld. Sec-36 Blk-275	T.D. 615	Dry
Windsor et al	1-Thomas	Grimes Blk-611	T.D. 668	Dry
Lloyd	15-Stanley	Smith Blk-139	T.D. 436	Dry
Baker Bros	1-White Heirs	Honeycutt Blk-623	1133-1151	50
Buder	4-Cross	Honeycutt Blk-623	1132-1144	120

Cherokee County

Humble	2-Elliott et al.	Garcia	T.D. 3647	191

Coleman County

Humphreys Bros.-Union Oil Co. et al.	1-Sanger Bros.	HT&B Sec-61	1758-1762	2M
Atlantic-Midsun	1-Daugherty	GH&H Sec-10 Blk-1	T.D. 2282	Dry
Chapman et al	1-Fuller	Martinez Sec-12 Blk-751	T.D. 1607	Dry
Eastland-Shell	1-Keeney	Cochran Sec-3 Blk-269	T.D. 2025	Dry
Moss et al	1-Moss	TCI Blk-70	T.D. 6	Dry
Stepp-Keister	4-Shore	GH&H Sec-72 Blk-1	T.D. 995	Dry

Haskell County

Hammond et al	1-Pierson	Taylor Sec-27	T.D. 1552	Dry

Jack County

Rochelle et al	1-Grey	Ramsey	T.D. 3700	Dry
F. H. E.	1-Box	Hughson	3087-3135	75
F. H. E.	2-Box	Hughson	3054-3185	720

Leon County

Ballard	1-Tubb	De La Garza	T.D. 2001	Dry

Palo Pinto County

Chestnut-Smith	1-Lane	T&P Sec-13 Blk-4	3990-4000	3M
Upham	3-Wharton	Green Sec-207	4164-4295	1M

Runnels County

Marland	1-Herring	ET Sec-139	T.D. 4200	Dry

Shackleford County

Owens et al	1-Alexander	T&P Sec-42 Blk-13	T.D. 2030	Dry
Slicker	1-Mathews	ET Sec-58	T.D. 1195	Dry
Cranfill-Reynolds	2-Moberly	T&P Sec-48 Blk-11	1047-1049	5

Stephens County

Zingery et al	1-Cooper	BAL Sec-8	2185-2192	17

Throckmorton County

Erwin Prod	1-Davis	Garner	T.D. 1500	Dry
Gulf Prod	1-Brown	TE&L Sec-1617	T.D. 4450	Dry
Woodson	2-Overcash	TE&L Sec-960	T.D. 1318	Dry

NORTH TEXAS

Archer County

Brown-United Prod.	2-Taylor	ATNCL Sec-17 Blk-10	1636-1641	30
Brown-United Prod.	3-Taylor	ATNCL Sec-17 Blk-11	1483-1485	212
Cont.-Cullum	2-Falls Co. Sch. Ld.	FCSL Blk-9	1113-1128	38
Continental	4-Richardson	McCoy Blk-10	1164-1169	69
Fain-McGaha	3-Taylor	ATNCL Sec-17 Blk-11	1477-1483	200
Humble	3-Kunkel	BBB&C Sec-3	1183-1185	300
Humble	8-Logan	Armes	1103-1118	25
Massie	7-Wilson	ATNCL Sec-23 Blk-4	1573-1593	15
Payne et al	4-Parrish	SP	1396-1404	24
Shappell	6-Lyles	Hooper et al Blk-7	1698-1701	65
Smith	4-Prideaux	TE&L Sec-1860	734-745	8
Archer Drlg	3-Thompson	ATNCL Sec-20 Blk-12	T.D. 1645	Dry
Coleman et al	1-Longley	Jefferson Co. Sch. Ld. Blk-98	T.D. 1350	Dry
Fain-McGaha	1-Taylor	ATNCL Sec-17 Blk-18	T.D. 1666	Dry
Grebin et al	1-Graham	Meade Blk-23	T.D. 1502	Dry
Hunter	1-Bishop	Meade Blk-52	T.D. 1505	Dry
Kemrow	5-Campbell	DCSL League-3 Blk-1	T.D. 1825	Dry
Pace et al	1-Riggs	SP Sec-2	T.D. 2004	Dry

Cooke County

Company	Well Farm	Survey Sec. & Blk.	Depth	Init. Prod.
Kewanee	1-Hair	Lockard	T.D. 1668	Dry
Stineman	1-Bowers	Stanley	T.D. 1484	Dry
Kewanee	17-Hyman	ET	1294-1352	36
Kewanee	18-Hyman	ET	1200-1225	103
Kewanee	19-Hyman	ET	1415-1430	108
Humble	2-Poteet	Stephens	1362-1380	200

Grayson County

McGregee-Jones	1-Colman et al.	Wright	T.D. 225	Dry
Murchison-Sun	1-Guilload	Ingram	T.D. 976	Dry

Wichita County

Comac Drlg	2-Morgan	Meadows	T.D. 1657	Dry
Golding-Cochran	4-Waggoner	George Blk-22	1287-1305	140

Wilbarger County

Burton et al	I-3-Waggoner	MEP&P Sec-40	1859-1883	35
Empire	A-5-Waggoner	H&TC Sec-32 Blk-4	1813-1832	174
Empire	B-11-Waggoner	H&TC Sec-32 Blk-4	1840-1842	200
Fain-McGaha	W-5-Waggoner	H&TC Sec-32 Blk-4	2409-2413	200
Grayback Dev	1-Waggoner	MEP&P Sec-40	1857-1879	230
Melot	A-7-Waggoner	H&TC Sec-10 Blk-4	1997-2000	15
Richfield	A-1-Waggoner	H&TC Sec-10 Blk-4	1980-1994	25
Shaw	G-2-Waggoner	MEP&P Sec-40	1851-1871	200
Shaw	G-3-Waggoner	MEP&P Sec-40	1855-1870	175
Staley-Wynne	F-7-Waggoner	H&TC Sec-32 Blk-4	2414-2424	85
O'Neal	N-1-Waggoner	MEP&P Sec-40	T.D. 1903	Dry

Young County

Kleiner et al	30-Langston	TE&L Sec-1490	T.D. 583	Dry
Clarida-Bratcher	1-Johnson	Sergeant	T.D. 730	Dry
Dixon et al	1-Cardwell	TE&L Sec-233	T.D. 1350	Dry
Shinola	2-Haygood	TE&L Sec-1466	T.D. 772	Dry
Panhandle	1-Morrison	TE&L Sec-465	T.D. 4405	Dry
Robertson Drlg	6-Gilmore	YCSL Blk-14	571-593	7
Kleiner et al	29-Langston	TE&L Sec-1490	517-546	75
Wise-Jackson	9-Calvin	Rohus	629-637	5
Fultz et al	1-Scott	Johnson	3976-3977	216
Shaw et al	1-Kisinger	Conner	2511-2537	33

PANHANDLE

Carson County

Marland	1-Burnett	I&GN Sec-79 Blk-4	3145-3175	80M

Gray County

Gardner-Collins	1-Saunders	ACH&B Sec-3 Blk-1	2538-2660	2100
Arnold	1-Mongole	I&GN Sec-212 Blk-3	2688-2690	37M
Texas	2-Chapman	A-9 Sec-50	2735-2902	56
Shamrock	3-Clayton	H&GN Sec-50 Blk-25	2834-2846	960
Magnolia	3-Bowers	H&GN Sec-63 Blk-B-2	3023-3024	150

Hutchinson County

Holmes et al	1-Moore	I&GN Sec-125 Blk-4	3025-3040	200

Wheeler County

Lela	5-Willams et al.	H&GN Sec-9 Blk-27	2240-2241	180

WEST TEXAS

Crane County

Gulf Prod	63-McElroy	CCSD Sec-200 Blk-F	2780-2874	180

Crockett County

Young-Donnelly	1-Shannon	D&SE Sec-11 Blk-9	1662-1676	5M
Young-Donnelly	1-Massie	GCSF Sec-28 Blk-UV	T.D. 1110	Dry
Young-Donnelly-Moncrief	1-Todd	GCSF Sec-35 Blk-WX	1365-1400	24

Garza County

Emerald	1-Reed	H&GN Sec-135 Blk-5	2495-2546	60 (6 Hrs.)
Emerald	4-Boren	H&GN Sec-136 Blk-5	2507-2533	60

Howard County

Moody	11-Roberts	W&NW Sec-136 Blk-29	1424-1436	25
Schermerhorn	6-Roberts	W&NW Sec-137 Blk-29	3037-3047	100

Irion County

Furhman	1-Suggs-Lease 1	H&TC Sec-3024 Blk-24	T.D. 2004	Dry

Pecos County

California	3-Smith Lse-1	TC Sec-21 Blk-194	1385-1476	150 (8 Hrs.)
Moncrief et al	1-Tippett	TC Sec-46 Blk-194	T.D. 1574	Dry
Alexander-Lyles	1-Sellman	TC Sec-20 Blk-Z	1611-1655	3.4M

Reagan County

Big Lake	166-Univ.	Univ. Sec-12 Blk-2	2936-2941	50
Skelly	3-Grayson	Univ. Sec-33 Blk-8	T.D. 3096	Dry

Upton County

Wentz	5-Sherk	MKT Sec-35 Blk-1	2275-2335	35

Completions in North Louisiana and Arkansas, Week Ended July 4, 1929

Louisiana—Bossier Parish

Company	Well	Location	Depth	Yield
Palmer Corp	Schmidt No. 1	14-17-12	877	23M gas

Caddo Parish

Sam Gold et al	Hunter Estate No. 1	17-19-14	2415	800 bbls.
Ohio Oil Co	Hunter Estate No. 1	17-19-14	2414	90 bbls.
Dixie Oil Co	Robertshaw No. 99	13-21-15	2255	dry, aband.
Dixie Oil Co	Wells B-3	10-21-15	1745	dry, aband.
Dixie Oil Co	Slattery B-3	21-21-15	1608	dry, aband.

Morehouse Parish

South. Carbon Co	Tensas Delta No. 10	2-20-4E	2177	24M gas

Ouachita Parish

Ouachita Nat. Gas Co.	Smith No. 11	28-20-4E	2165	40M gas

Richland Parish

O. E. Hodge	W. T. Sartor No. 1	16-16-6E	2450	45M gas

Webster Parish

Magnolia Pet. Co	Denman No. 1	1-22-11	2719	saltwater, abnd.

Union Parish

Texas Co	Fuller No. 1	9-21-2W	3587	dry, aband.

East Texas—Harrison County

Company	Well	Location	Depth	Yield
Eureka Nat. Gas Co	Vaughn No. 4	W. R. Anderson HRS	2370	1½M gas
C. H. Lyons et al	Furrh No. 6	James Short HRS	2375	2M gas

Penaola County

Texas Co	Adams A-11	S. B. Lacey HRS	978	1M gas
D. Thomason	Abe Mays B-1	Jane Thorpe HRS	1800	dry, abnd.

Arkansas—Ashley County

Atlantic O. P. Co	Bledsoe No. 1	20-15-7	3060	dry, aband.

Columbia County

Dr. Bush et al	Jones No. 1	5-17-18	3300	dry, aband.

Union County—Rainbow City

Gulf Ref. Co	Gaddy No. 2	30-17-14	2820	18Mgas

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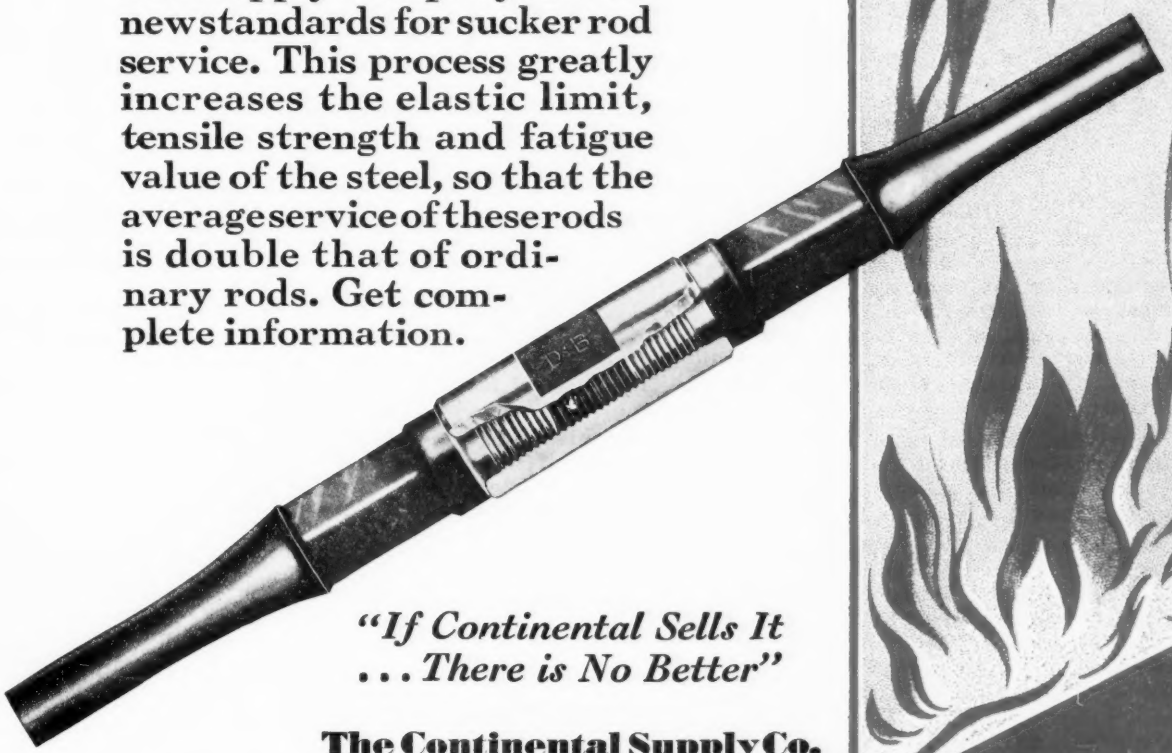

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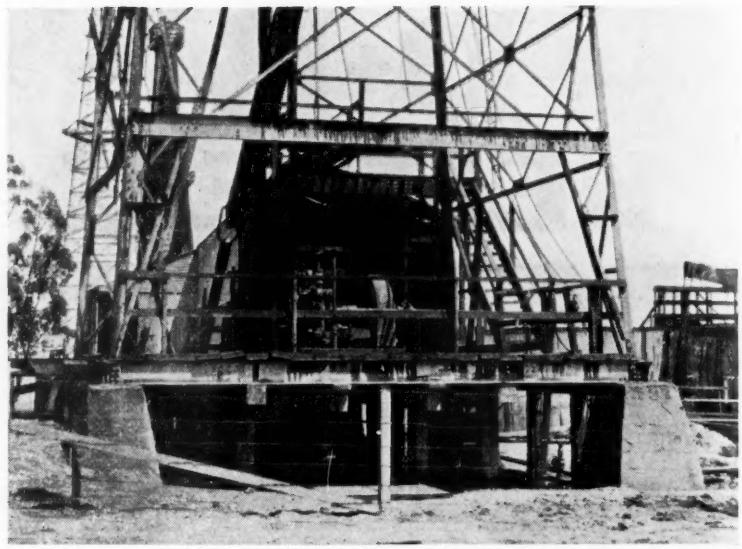

Type of concrete foundation for a drilling well found in Long Beach, Cal., field.

PURE WATER the first REQUISITE in mixing OIL FIELD CONCRETE

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON

WATER used for mixing concrete in general oil field practice, such as building derrick foundations, settings for engines and so on, should always be tested first, if later troubles are to be avoided and the material is to give full service.

If water is not fit to drink then John A. Kirschke, of the Rio Bravo Oil Co., Houston, does not want to use it for mixing concrete.

Saline waters should not be used, in his experience, because of the danger of corrosion of steel reinforcements. It should be remembered, he says, that the hydration of cement forms concrete and good water means good hydration.

Mr. Kirschke points out that to obtain good concrete careful consideration should be given to the ingredients used. The most important of these is described as the cement. It should be always of a quality conforming to standard specifications of the American Society for Testing Materials. As it is impossible for the average man to judge qualities of cement only standard brands should be purchased and these on specifications.

With the addition of inert materials called aggregates to a cement/water mixture the result is concrete. Aggregates may be classified by the terms fine and coarse, the fine being material passing through a ¼-inch screen, coarse being retained.

The fine aggregates, according to Mr. Kirschke, should consist of natural sand or screenings from hard, crushed rock; coarse aggregates should consist of clean, durable, crushed rock, slag or gravel, free from flat and elongated particles and well graded.

For oil field foundations, it is Mr. Kirschke's recommendation that aggregates should pass through a 2-inch screen. Both fine and coarse aggregates should be free from all foreign and organic matter.

With raw materials for making concrete at hand in almost limitless quantities in any locality the primary construction problem is to adopt a means of bringing about a good and proper mix. No standard method of mixing has been adopted due to differences in conditions surrounding the work in question, which must always be considered.

It is pointed out by Mr. Kirschke, however, that the mechanical mixer is conceded to be the most satisfactory in that it affords a more rapid and thorough means of bringing the constituents of the mix together. When the operation is carried on by hand there is good opportunity for a poor mix.

The time of mixing is described as very important and should be figured from the moment all materials, including the water, are in the drum of the mixer until the dumping starts. For ordinary work, mixing from one to two minutes is recommended; however, mixing should not be considered complete until a uniform color prevails throughout.

All materials going into the mix should be carefully measured and in no instance should they exceed the specified ratio for the job in question. Special care should be exercised in measuring the water and the number of gallons specified per sack of cement should not be exceeded. The strength and quality of concrete are dependent on the amount of water used in mixing, other ingredients remaining constant.

For example, this can be readily understood if the water and cement mixture is thought of as a glue acting as binder to hold the other ingredients together. Thus, to dilute is to weaken the strength of the binder. There is no excuse for using too much water, it is pointed out, and more particularly in the case of the mechanical mixer it would be only a question of gross carelessness.

Hand mixing of concrete is frequently necessary in the oil fields, where mechanical facilities may not be readily at hand or their transfer would not be justified by the expense involved for a single small job. It is recommended that hand mixing be done in a water tight trough or on a tight platform. The fine aggregates and cement should be mixed dry, then the coarser aggregates added and mixed.

WATER should be added in small quantities and the whole mass mixed until it is uniform in color throughout and all stones are covered with mortar. Here care should be taken to avoid the tendency of the concrete to lump during the mixing, due to a lack of sufficient water.

With a well designed mixture delivered with proper consistency and without segregation the placing of the concrete is greatly simplified. But care must be taken even then to further prevent segregation and see that the mixture flows readily into all corners and angles of the forms and around reinforcing.

Care should be taken to prevent the all too common practice of depositing continuously at one point and allowing the material to flow to distant points. Even though the material flow is sluggish and is in every respect of proper consistency, flowing over long distances will cause segregation, especially of the water and fines.

In spite of the utmost care it will occasionally happen that a batch either too stiff or too sloppy, or possibly with some segregation, will reach the point of deposit. Thus, it is imperative that the concrete mix, as it is being placed, should be puddled or spaded in thin layers of eight to 10 inches until the form is completely filled.

Air pockets and voids called "honeycombings" can be eliminated in this way. When occurring they naturally reduce the strength and resistance of the foundation.

In placing concrete in deep layers a gradual increase in the water content of the upper portion is quite certain to result. The excess water should be worked to a low point, without actually causing a flow, and removed; for excess water in the upper layer is just as objectionable as excess mixing water.

If excess water is not removed it will ultimately solidify in a soapy, porous layer, absorbing all fine materials, dirt and scum which rise to the surface. This layer, called laitance, has no strength and should be scraped off as soon as the concrete has stiffened. If left in place it will disintegrate and leave a weak spot in the structure or foundation.

Many rules and precautions govern the proper "curing" of concrete. Water used in mixing must be kept from evaporating, or extra fluid must be added to the surface of the newly placed concrete to replace that lost through evaporation. Proper curing of concrete is especially important in warm or windy weather and where exposed surfaces are large.

Concrete while curing should be protected from the weather by such covering material as burlap, canvas or sand. The covering should be put in place as soon as possible without marring the surface and should be kept wet for six or seven days. In ordinary field work, it is described as sufficient to bank foundations with surface loam. Forms assist in preventing evaporation and should be kept in place as long as concrete is in the process of being cured.

Tensile and shearing strengths of concrete are low as compared with compressive strength, hence metal rods or built up steel forms are imbedded in concrete structures where they are subject to tensile and shearing stress. Proper placing of the reinforcement is a problem that must be solved for each job as the problem arises.

Reinforcement is used chiefly in tension-sustaining parts of beams, girders, walls, floors, etc. It is also used for preventing hair cracks in smooth surfaces by using light metal wire for reinforcing.

In the case of the Rio Bravo, one of the company's chief uses of concrete is in derrick foundations. The first operation involved in erecting a derrick is the construction of suitable foundation corners, the essentials of which are rigidity, permanence of elevation and alignment and permanence of the base material itself.

The fact that concrete is strongest under compressive loads makes its use ideal for derrick foundations; however, it is pointed out there are times when the load may become one of tension or shear, due to windstorms. It is such unlooked for strains that necessitate the use of reinforcements in concrete derrick pillars.

Old sucker rods are generally used for derrick pillar reinforcements, the only problem being to establish the most satisfactory arrangement of them. The standard derrick foundation adopted by the Rio Bravo will be adequately reinforced, it is pointed out, if these rods, or similar materials, are cut in six foot lengths and placed six in a layer equally spaced on each four-inch layer of concrete mat.

Alternate layers of rods should be laid crosswise with the first set. As a bond between the pier and the mat, three of these rods should be bent into the shape of a croquet wicket and the ends should be then worked into the center of the mat until the apex of the curved portion extends about 12 inches above the surface.

The form for the pier then should be set up and within this form some six or seven reinforcing rods spaced equally with the ends worked down into the mat. The concrete then should be poured around the frame work. With this type of reinforcing and good concrete, the derrick corners as designed will furnish a strong and permanent foundation. It is pointed out, however, that the strength can be increased markedly if care is taken to properly "cure" the concrete pier.

1928 Total Cracking Units Lower, Mines Bureau Shows

WASHINGTON

THE year 1928 was, in general, an important one of the cracking branch of the petroleum refining industry, according to the United States Bureau of Mines, Department of Commerce, which has conducted a survey of cracking plants as of Jan. 1, 1929.

Gasoline consumption reached record levels, prices were higher than in 1927, and it is probable that in the late months of the year the cracking plants were operating close to capacity.

On Jan. 1, there were 2,205 cracking units completed or being built in the United States, with a total daily charging capacity of 1,476,874 barrels, the bureau found. A similar survey of a year ago showed 2,334 units of 1,288,000 barrels total capacity. This indicates that despite a decrease in number of units, there was a material increase in capacity.

Of the total capacity of 1,476,874 barrels for the completed plants and those under construction, 1,194,501 barrels, or 81 per cent, represents the capacity of the operating units, 147,923 barrels, or 10 per cent, was shut down, and 134,450 barrels, or 9 per cent, was being built. In comparison with the survey of Jan. 1, 1928, this indicates an increase in capacity of the operating units of 18 per cent, a decrease in the shut-down capacity of 71 per cent, and an increase of 511 per cent in the capacity of the units under construction.

On Jan. 1, 1928, only 10 units of 22,000 barrels total capacity were under construction in only five states, whereas, on Jan. 1, 1929, there were 71 units being built in 15 states to have a capacity of 134,450 barrels.

Texas easily retained its rank as the leading state from the standpoint of cracking equipment, both completed and under way. California recorded a capacity increase of 76 per cent in 1928 and displaced Indiana in second place. The East Chicago, Ind., had the largest concentration of cracking equipment of any area of like size, with the possible exception of Houston, Tex.

Thirty-six different types of cracking processes are listed in this survey as compared with 31 in the survey of Jan. 1, 1928. This survey lists 2 vapor-phase units of 18,700 barrels capacity on Jan. 1, 1929, as compared with 7 units of 6,100 barrels capacity on Jan. 1, 1928.

The results of the survey are given in information circular 6127, by G. R. Hopkins, associate economic analyst, Bureau of Mines. The circular contains a list of all cracking plants, with information in each case as to location, number of units, total daily charging capacity, and type of process employed. Recapitulations by districts, states and types of process are given in the circular.

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Economies In Small Well Production

Part One

Development and Application Of Basic Theory for Lifting Oil

By Allison C. Dyer*

Presented before Los Angeles Meeting June 26-28, California Branch, Division of Production and Development Engineering, American Petroleum Institute

THE meaning of a small well is relative. To operators in the older fields, a 50-barrel well, or even a 10-barrel well, is a large well; while to operators in the newer flush fields such wells are rather contemptuously referred to as "strippers."

However, within the meaning of this paper, a small well is one in which the primary objective is to secure the maximum production rate at a minimum operating cost. This contrasts the meaning of a large well where the primary objective is to secure the maximum production rate, the operating cost being of minor importance.

This point may be brought out by a hypothetical case of an operator having two wells, one producing 500 barrels and the other 50 barrels daily. Assume the production cost on the large well to be $10 per day: then the production cost on the larger well will be but two cents per barrel, while on the smaller well it will be 20 cents per barrel. Naturally, this operator will be most interested in production methods which will lower his cost on the small well.

It is evident that there is a point in the life of every large well where an economic change occurs in its status—where it indeed becomes a small well—and the production methods to be applied before and after this change are radically different.

An analysis of the production of crude oil in the United States as published by the American Petroleum Institute, indicates that over 95 per cent of the total number of wells may be classed as small wells as herein defined. As these wells total over 300,000, and produce about 50 per cent of our oil, methods which will lower production costs on such wells are of great economic importance.

In comparing and analyzing production methods, it is imperative that accurate cost records be kept on individual wells. A very satisfactory method of cost statistics particularly adapted to pumping wells was described in the California State Mining Bureau Bulletin, Vol. 5, No. 9 by W. B. Blodgett, and H. L. Briggs.

Typical production costs on various classes of pumping wells are readily available, where standard pumping equipment is in use. However, a segregation of these costs may be of interest to many operators. Appendix I shows such costs on various groups of wells. As a whole these costs were for wells producing an average 20 to 25 barrels daily, from an average depth of 1500 feet. Detailed analyses are given under Appendix I on Direct Labor and Material Costs, Power Costs and Redrilling Costs.

A study of production costs on pumping wells will usually show that 75 per cent to 90 per cent of the total well costs are due to the following conditions:

1. Failure and wear of sub-surface equipment.
2. Wells "sanding up" or valves "balling up."
3. Repair and maintenance of surface equipment.
4. Power costs.

As a rule, small pumpers with standard equipment are pumped from 5 to 20 times faster than the maximum rate of migration from the formation. This condition has not received the attention it deserves from engineers and superintendents. It is the natural inclination of production crews to speed a well up when the production begins to fall off. They do not realize that a 3-inch pump, for instance, in the first hole will produce over 20 barrels daily *at only 1 stroke per minute* with full volumetric efficiency.

If the necessary equipment and methods are installed for operating small wells at one-tenth to one-twentieth their present speeds, and still get the same or greater production by securing high volumetric efficiency, a tremendous saving will be effected in the major items of operating well costs enumerated above. Indications are that improved methods and equipment will reduce total operating well costs by at least 60 per cent on the average pumper, or about $3.65 saving per well per day. This means that $1000 invested in modern equipment would be paid out in 9 months time on the average well.

PRACTICAL assistance to the operator of small settled production wells is given in the accompanying paper.

In general the author says improved methods and equipment will reduce total operating well costs by about 60 per cent in the case of the average pumper.

A basic theory of lifting oil in such wells is developed in which the importance is recognized of retaining in the oil until it reaches the surface the occulded gas and the gas in solution in the ground.

Practical application of this theory is made and description is given of special new equipment in use in pumping wells in California.

Economical methods of individual well gauging, of pulling and cleaning out, of heating and treating the oil will be described in the second portion of this paper, to be published in July 17 issue of NATIONAL PETROLEUM NEWS.

LIFTING

Development of Basic Theory

The economic success or failure of a small well depends, to a great extent, upon the method of "lifting" the oil from the sands. Of two wells, each with the same potential oil revenue, the one improperly produced will dissipate those revenues in operating expense. The other rightly produced will show dividends from the start straight on through until the sands are finally depleted.

With this in mind, what is the right way? The problem is not simple. No one can say that one method is absolutely right and all the rest are inherently wrong. The field is too broad for that.

There is one thing we can do—formulate a basic, economic theory of producing oil from small wells. We can do this and the rule of "right or wrong" will definitely apply here. If it is right, it will adapt itself to any given set of conditions. Then, having the correct basic theory we can choose the method which most nearly corresponds.

*Assistant petroleum engineer, U. S. Geological Survey, Taft, Calif.

Unusual Evidence of the Superior Performance of

HUGHES VALVES

This interesting photograph shows the Christmas Tree on the Rohde-McAdams well No. 1, Santa Fe Springs, California, following a disastrous fire that burned down seven wells.

When workers clad in asbestos suits attempted to shut in the well they found that Hughes Valves were the only ones that did not leak. A successful shut-off was made with two Hughes Manifold Valves, — one line having been broken.

After new connections were made, a Hughes Valve was opened and the well immediately started making 3750 barrels a day.

Ed McAdams, part owner and general manager of the well, was responsible for extinguishing the fire.

This is but another instance where Hughes Valves proved their superior performance under extreme conditions.

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In the formulations of such a theory there is one fact to bear in mind; all oils in their natural state bear more or less gas in occlusion and gas in solution. It is highly important that these gases be retained in the oil until it reaches the surface. Retained, these gases not only reduce the viscosity of the oil, and, consequently, the frictional resistance; but also lower the surface tension of the oil and it will carry less sand to the surface. Liberated, these gases only serve to "gas bind" the pumping mechanism.

In order to retain these gases in solution and occlusion we must—

1. Maintain a proper fluid column head against the oil in the formation. This head must not be too high or it will unduly retard migration from the sands. It must not be too low or the oil in the formation will liberate its gas.

2. Properly design and operate the pumping mechanism. An analysis of the situation reveals the following factors:

(a) As stated above, in any pumping well there is one most efficient fluid level which will effect the maximum drainage rate of oil from the formation.

(b) In order to maintain the most efficient fluid level, the rate of flow through the standing valve must equal the maximum drainage rate from the formation.

(c) Again, as stated above, the oil in the well contains gas in solution and occlusion. The amount of gas in solution varies as the pressure, and the volume occupied by the occluded gas varies inversely as the pressure.

(d) A pump barrel is submerged in this column of live oil. In order to fill this barrel there must be a pressure differential between the inside and outside of the barrel sufficient to overcome the resistance of the standing valve.

(e) This pressure differential varies as the rate of the plunger displacement within the barrel.

(f) The lowered pressure within the pump barrel, draws gas out of solution in the oil and expands the occluded gas in the oil. In order to maintain the full volumetric efficiency of the pump barrel this expansion must be as small as possible.

Then in order to accomplish our purpose—

1. The total plunger displacement must equal the maximum flow of oil from the formation, at the same time retaining the proper fluid column head.

2. The rate of plunger movement must—

DETAILED ANALYSIS OF DIRECT LABOR AND MATERIAL COSTS

Appendix 1

WELL COSTS	——Typical Costs—— Per well per day	Cost per bbl. oil
A. Continuous direct costs to individual wells		
1. Labor	$3.30	$ .137
2. Material	.80	.033
3. Power	.92	.042
Total of "A" costs	5.02	.213
Distribution of Labor and Material		
(a) Subsurface work		
Parted rods	.42	.018
Changing pumps and seats	.26	.011
Defective tubing	.17	.007
Washing out due to valves balled up	.37	.015
Bailing and cleaning out operations	2.39	1.00
(b) Surface equipment maintenance		
Power plant repairs (prime mover)	.19	.008
Surface equipment repairs	.30	.012
B. Occasional direct costs to individual wells		
1. Major rig repairs	.18	.005
2. Redrilling operations	.22	.010
Total of "B" costs	.40	.015
Total Direct Operating Costs to Individual Wells	5.42	.228
To the above costs must be added royalties if any		
C. Indirect well costs		
Production Foremen	.12	.005
Gaugers	.08	.003
Pumpers	.26	.011
Oilers	.03	.001
Truck Drivers	.08	.003
Transportation Equipment	.19	.010
Total "C" costs	.76	.033
TOTAL WELL COSTS	$6.18	$ .261

(a) Be such that it will accommodate the maximum flow mentioned above;

(b) At all times be such that any additional pressure differential, over and above that necessary to overcome the resistance of the standing valve, will be a minimum. This will avoid unnecessary expansion of gas in the barrel and will tend towards full volumetric efficiency.

The ideal fulfillment of the above condition requires a constant velocity stroke of the plunger. The nearer this ideal condition can be attained, the greater the production efficiency of the pumping mechanism.

APPLICATIONS OF BASIC THEORY

Head Well Pumping—

A head well is essentially one in which the sands are nearly depleted of their oil. Under the older methods of production these wells were pumped long enough each day to pump the head off and were then shut down. This practice effected a certain power saving and also eliminated the over-heating of the stuffing box which occurs when a well is pumped after the oil flow ceases.

In the above method no attention was paid to the retention of the gas in the oil or to the maintenance of a proper fluid level. As a result the production was usually below par.

A case in point is that of Chanslor-Canfield Midway Oil Co.'s Well No. 2, Sec. 36, T. 31 S., R. 22 E., M.D.M. Depth 1900 feet, gravity of oil 20 Be., 2½-inch pump and tubing. With standard band-wheel equipment and a 10-30 horsepower motor this well was pumped two hours daily at 18 to 24-inch strokes per minute. Production 1.2 barrels daily. Power cost 62 cents daily. Volumetric efficiency of pump about 4½ per cent.

The basic theory as developed in the preceding chapter was applied to this well in the following manner:

An analysis of the oil showed very little gas in solution or occlusion. Hence, the only remaining factor in our theory pertinent to this well was the maintenance of the proper fluid column head. Owing to the fact that the gas in this oil had long ago been dissipated, the force bringing this oil to the well must be either gravity or hydrostatic pressure. In either case the propellant force was small. Hence, it was reasoned that, if a minimum fluid column head, consistent with the functioning of the standing valve, was at all times maintained then the oil would keep moving to the well. This in itself ought to show an increase in production. Also, if this oil was constantly moving instead of being dammed during a portion of each day, new drainage channels should be opened up and the well would show an added increase in production. That the theory was correctly applied is proven by the results tabulated below.

A constant velocity cycle individual pumping unit was installed in place of the standard band-wheel equipment. The well was pumped with a two horsepower motor 24 hours daily at 2.4 36-inch strokes per minute. Power cost 24 cents daily. The first day's production was 3.5 barrels and a gradual increase in production rate of 5.2 barrels. The volumetric efficiency of the pump was between 20 and 30 per cent. This efficiency could have been increased had it been possible to slow up further

the pumping speed. This was impossible at the time owing to the fact that the unit was driven by an ordinary leather belt and a further reduction in speed by reducing the size of the motor pulley was impractical.

Another type case was that of Chanslor-Canfield Midway Oil Co.'s Well No. 20, Sec. 8, T. 32 S., R. 23 E., M.D.M. This well was chosen because it was typical of numerous wells in the Midway district. The operating expenses due to oft repeated repair and clean out jobs, was exceedingly high and this well was slated for abandonment. However, before abandonment it was decided to ascertain whether under the application of the aforementioned basic theory, this type well could be operated at a profit. The history of the test follows:

With standard band-wheel equipment, 10-30 horsepower motor and operated as head well two hours daily at 16 24-inch strokes per minute. Production was one barrel oil and four barrels water daily. Power and repair cost $5.10 per day over a period of six months.

On Feb. 22, a constant velocity pumping unit was installed in place of the band-wheel equipment. A 5-horsepower motor pumped this well 24 hours per day. With a speed of 2 36-inch strokes per minute the well produced 2.7 barrels oil and 4 barrels water. As the volumetric efficiency of the pump barrel was still too low the pumping speed was cut to seven-tenths of a stroke per minute. It then produced 4.2 barrels oil and 4.8 barrels water.

The operation of the unit was without trouble until March 21 last, when the valves balled up. The well was washed out and operations were resumed until April 4, when the valves again balled up. The pump was pulled and a friction garbutt rod installed and to date the well has given no further trouble. Attention is called to the fact that, in spite of the extremely low speed at which the well is being pumped, practically a full 100 per cent volumetric efficiency is obtained.

Intermittent Pumping

A very decided advance over the old methods of head well pumping is that of intermittent pumping as developed by the Union Oil Co. at Brea, California, and the Chanslor-Canfield Midway Oil Co. at Torrance, California.

Two intermitters were designed and built. Both are operated by telechron clock movements, and both will control the pumping time in any half-hour interval, although they are quite different in design.

The clock movement is a synchronous motor operated from the 110 volt circuit. The contactors on the timer operate the magnetic relay switch which controls the line-start motors. The intermitter may be installed in a few moments on any line-start motor controlled by a magnetic switch.

The results attained on four wells with intermittent pumping are given in Appendix II. These were all small wells producing from 20 to 50 barrels daily. The pumping speed was from 15 to 25 32-inch strokes per minute. The most notable result of these tests is a reduction of 40 per cent to 65 per cent in the power consumption, by intermittent pumping compared to continuous pumping.

No data are available as to the reduction in other operating costs, but it is evident the wear on all equipment should be reduced in proportion to the time pumped. The volumetric efficiency was practically doubled in all cases, by intermittent pumping, but it was still objectionably low, not exceeding 20 per cent in any case. No material increase in production was noted. It is believed sufficient data have been secured to draw the following generalized conclusions:

1. On wells previously pumped 24 hours the intermitter will not, in most cases, show any increase in production.

2. On wells previously pumped part time, such as four, eight or twelve hours, the intermitter will, for the same pumping time, usually show a material increase in production.

3. The intermitter will save power and maintain production on any well showing a tendency to pump off.

4. It has been noted that on wells pumping by heads, considerable difficulty is experienced with the burning of the packing in the stuffing box. This is practically eliminated when the wells are pumped intermittently, due to the presence of fluid at the head when the wells are not completely pumped off.

5. The time interval of pumping and rest is controlled by the following factors:

(a) Rate of flow into the tubing.

(b) Tendency of well to sand up. (Wells pumping much sand should not be off more than one-half to one hour.)

(c) Condition of standing valve. (A leaky standing valve will give the fluid a chance to leak back, thus the time on may be used principally for filling the tubing instead of production.)

6. The most practical time intervals seem to be as follows:

½ hour on, and ½ hour off.
1 hour on, and 1 hour off.
½ hour on, and 1 hour off.
1 hour on, and ½ hour off.

It is evident that intermittent pumping partially fulfills the requirements of our basic theory of lifting oil, developed in this report. The most efficient fluid level is maintained

Typical Production Costs on Small Wells with Standard Pumping Equipment—Continuous Direct Costs for Labor and Material to Individual Wells

APPENDIX 1—DIVISION A-1 AND 2

Group	No. of Wells	Pump Depth	Cost per day per Well	Daily Production Oil Bbl.	Water Bbl.	Total Bbls.	Gravity of Oil	Cost per Bbl. Oil	Standard Equip. Gas Eng.	Pump Belt Dr. Motor
1	9	710	$2.40	25	3	28	16.0	$0.095	9	0
2	18	900	3.10	14	40	54	14.0	.220	6	12
3	33	1080	3.50	7	1	8	12.5	.500	21	12
4	64	1400	4.25	17	10	27	16.0	.250	54	10
5	54	1500	4.95	33	24	57	20.0	.150	31	23
6	24	2550	5.50	20	11	31	21.0	.275	14	10
7	17	2600	5.80	29	15	44	20.5	.180	17	0

Distribution of Cost:—

Labor	80%
Material	20%
Total	100%

Distribution of Costs by Causes:

Parted rods	10%
Changing pumps and seats	6%
Defective tubing	4%
Power plant repairs	3%
Surface equipment repairs	7%
Washing out	9%
Cleaning out	61%
Total	100%

Note: The above costs do not include the following:
Power Costs
Major rig repairs
Redrilling operations

The volumetric efficiency on this group of wells was 9.7%
The average "fluid horsepower" demand per well was .45 h.p.
The estimated average load demand at polish rod with 100% counterbalance and 80% volumetric efficiency is 1.5 h.p.
The actual average connected horsepower per well was 27 h.p.
The estimated average connected horsepower per well with slow-speed, constant velocity pumping units is 3 h.p.

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No. 3 Lubricant, for mineral oils, gas, organic solvents, naphtha, etc., for temperatures up to 300 degrees Fahrenheit.

No. 315 Lubricant, for mixtures of oil and water, dilute acid and alkalies such as agitator draw-offs, casing head gas and natural gas.

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No. 6 Lubricant, for hot oils, gases and asphalt up to 525 degrees Fahrenheit.

No. 315 Lubricant, for mixtures of oil and water, dilute acid and alkalies, such as agitator draw-offs, casing head gas and natural gas.

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ANALYSIS OF POWER COSTS ON THIRTY-THREE WELLS

Appendix 1, Division A-3

A survey was made of 33 wells powered by fifteen 35-horsepower motors with belt drives to counter-shaft and band wheel, and partially counter-balanced.

The pump depths varied from 700 feet to 2300 feet with an average of 1072 feet.

The production data were as follows:

	——Aver. prod. per well per day——		
	Minimum	Maximum	Average
Barrels of oil	2	30	22
Barrels of water	3	270	23
Barrels of total fluid	5	300	45

The average demand was 15.5 k. w.

The volumetric efficiency was 6.9 per cent.

The power consumption per barrel of fluid lifted was 1.74 k.w.h. and per barrel of oil lifted was 3.56 k. w. h.

The average "fluid horsepower" demand was 1.12 k. w.

The estimated over-all efficiency from current input to polish rod was 7 per cent.

Tests were conducted on four of these wells with slow-speed, constant velocity pumping unit with 100 per cent counter-balance and 2 H. P. to 7½ H. P. squirrel cage motors. With these units on this entire group the estimated power consumption per barrel of fluid is 0.2 k.w.h. and per barrel of oil is 0.4 k.w.h. The estimated over-all efficiency from current input to polish rod is 60 per cent.

for a greater proportion of the time than when pumped continuously, but as no material production increase is obtained, it is probable much of the gas in the formation escapes into the well near the end of the pumping period, when the fluid is lowered and the face of the oil sand is exposed.

As intermittent pumping does not propose any reduction in the pumping speed of the well, the rate of plunger displacement during the pumping period is very much greater than the maximum rate of migration from the formation. Consequently, an unnecessarily high pressure differential is created between the inside and outside of the pump barrel, resulting in excessive volumetric expansion of the gas and oil mixture in the barrel.

The most logical application of this method of intermittent pumping is during that period in the life of a well when the production rate falls below the minimum pumping speed of existing equipment, but is not low enough to warrant the installation of modern, slow-speed, constant velocity pumping equipment.

Jack Line Pumping

In order to obviate the necessity of motors for each well, certain groups of wells are placed on jack lines. The jack plants or power plants are centrally located and the rods on each well tend to balance the rods on the well opposite. Thus, certain power economics are effected.

There are two major objections to the installation of jack lines: one is that about 80 per cent of the cost of installation is labor cost, hence, when a property is abandoned the salvage return is very low. As the cost per well hook-up is between $700 and $1600 and a good individual pumping unit with a much higher salvage value can be obtained as cheaply, this becomes a material factor for consideration.

Another objection to the average jack line hook-up is its inflexibility. That is to say, all wells controlled by any one jack plant are pumped at the same number of strokes per minute regardless of their individual requirements. This is contrary to the economical operation of a property as it is seldom that two wells will respond to identical treatment. Each well seems to have more vagaries than an army mule.

The engineers of the Union Oil Co. have attacked this problem of inflexibility by the installation of a two unit jack system. The unit consists of a shaft and crank mounted on concrete supports, chain driven from a double reduction gear, which is in turn directly connected to a 10-horsepower motor. The unit is mounted midway between the two wells, and directly in line. Old sucker rods are used as pull lines.

The jacks are straight line motion with adjustable stroke lengths from one to four feet. The counterbalances on the jacks are concrete blocks weighing approximately 1100 pounds, the idea being to counterbalance part of the weight of the rods at the jack and counterbalance the live loads of the wells against each other.

The results obtained (See Appendix 3) show the power cost to be exceedingly low for this type of equipment, the watt hour meter showing only eight horsepower per hour for both wells.

The cost of the complete system is about $2000. Of this amount $800 may be said to be intangible investment (labor, concrete foundations, etc.) The remaining $1200 is in material that may be salvaged.

The advantages of this system seem to be as follows:

1. Low first cost (1000 per well).
2. Low maintenance cost.
3. Small power consumption (4 horsepower per well).
4. Flexibility (as compared to the central power).

(a) Speed variable on each two wells.

(b) Stroke variable on each well.

(c) Lends itself to an expanding field by requiring only two wells per unit.

The writer wishes here to call attention to the fact that if the pumping speed on this system was reduced, the volumetric efficiency of the pump barrels would show a corresponding increase.

If this speed were cut enough to permit of a volumetric efficiency of 100 per cent, it would obviate the necessity of using the oil column in one well as a counterbalance to the oil column in the other.

RESULTS ATTAINED WITH INTERMITTENT PUMPING

Appendix 2

					PRODUCTION			POWER		
Well	Depth	Rods	Tubing	S.P.M.	Stroke	Av. Daily	Grav.	Cut	K.W.H. per bbl.	Volumetric Efficiency	Remarks
Stern 8	4418	¾"	2½"	24½	32"	48	21.5	5.6	2.92	7%	Continuous 24 hours.
Stern 8	4418	¾"	2½"	24½	32"	51	21.5	5.4	1.67	16%	Intermitter —½ hr. on —½ hr. off.
Stern 8	4418	¾"	2½"	24½	32"	54	21.5		1.48	16%	Intermitter —½ hr. on —½ hr. off.
Stern 9	4546	¾"	2½"	24½	32"	54	21.9	4.2	3.17	9%	Continuous 24 hrs.
Stern 9	4546	¾"	2½"	24½	32"	56	21.9	4.2	1.64	18%	Intermitter —½ hr. on —½ hr. off.
Del Almo No. 93				18	32"	19.29			6.9	5%	Continuous 24 hrs.
				15		19.30			2.6	10%	Intermitter —50 min. on —50 min. off.

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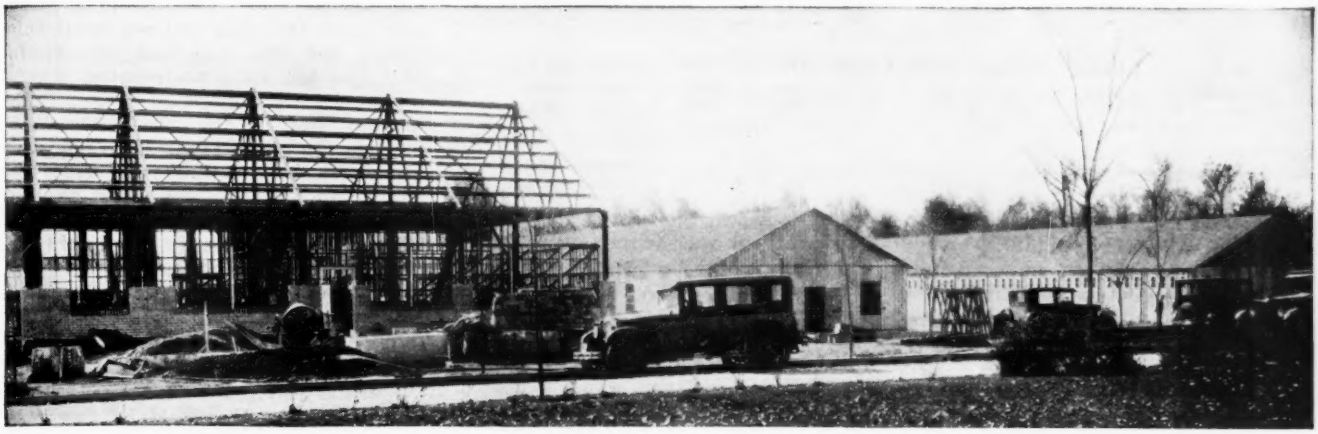

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Examples of Butler design are shown in the cross section views above of a purlin and of a side wall section. By such ingenious shaping the strength of steel is multiplied throughout Butler Ready-Made Buildings. Maximum strength per pound of steel is attained.

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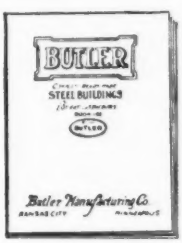

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In attempting to develop apparatus which would fulfill all of the requirements of our basic theory of lifting oil as furnished in this paper, it was immediately apparent that a 100 per cent constant velocity cycle was mechanically impossible, due to the necessity for accelerating and decelerating the well loads. However, after several months of preliminary study and design, a pumping unit was developed which gives approximately 80 per cent of the plunger travel at constant velocity, without dynamic loading on the rods beyond that in the crank-pin cycle.

RESULTS OBTAINED BY PUMPING WITH TWO UNIT JACK SYSTEM

Appendix 3

Well	Depth	Tubing	Rods	Net Oil	Grav.	Cut	Stroke	Vol. Eff.
Copeland 18	3730	2½	¾	9	20.0	30%	32	8%
Copeland 19	3680	2½	¾	29	24.1	6%	32	8%
19 s.p.m.								

Tests have been conducted with these units for the past 18 months, and the results have been very satisfactory. Some of these tests have already been discussed in this paper, but there remains one test of particular interest to the producer of low gravity, viscous oils, pumping large quantities of sand. This test definitely disproves the time honored theory that it is necessary to produce great quantities of sand with the oil, in order to get the oil into the well.

This test was conducted on Chanslor-Canfield Midway Oil Co.'s Well No. 7, Sec. 22, T. 31 S., R. 22 E., Midway District. This well was being pumped by a 25-horsepower gas engine from a depth of 1300 feet, and at a speed of 22 24-inch strokes per minute. The production was 11 barrels daily of 13 degree gravity oil carrying 32 per cent sand. Expensive cleaning out jobs were frequent as two weeks' operation under this method would pull sufficient excess sand into the well to fill it to the pump barrel. Also the wear and tear on pumping equipment was excessive due to the high pumping speed.

A slow-speed, constant velocity pumping unit was installed and operated with a 2-horsepower electric motor at a speed of two 36-inch strokes per minute. The production was raised to 32 barrels daily with only 8 per cent sand. It was noted the sand produced was very fine and was readily carried in suspension in the oil, while most of the sand produced by the old method, together with all of the sand bailed from the well when cleaning out, was very much coarser.

From the results obtained it was evident that this finer sand was washed from the voids of the coarser grained sands and that these coarser grained sands left remaining in the formation offered no serious impediment to the flow of oil to the well. Also, by the retention of the coarse grained sand in the formation the caving of the formation was entirely eliminated.

After three months' operation at the slow speed, the tubing was pulled, and the well was found open to bottom indicating the slow-speed, constant velocity cycle, did not pull excess sand into the well, and the pump readily handled the finer sand which was naturally carried in suspension in the oil. The same pump remained on the well throughout this test, and the balls and seats showed practically no wear.

(End Part 1)

Withdrawal Order Suit May Be Broadened

WASHINGTON, July 5.—The question whether Withdrawal Order No. 338, whereby the granting of exploration permits to seek oil and gas was withdrawn in accordance with President Hoover's conservation policy, may be presented to the courts of the District of Columbia on a broader foundation than that created by the one suit now pending. This is the suit of Ethel McLennan, a citizen of California, for a writ of mandamus requiring Secretary Wilbur to issue her a permit allowing her to explore N. W. quarter Sec. 34, T. 26, S. R. 21 E., M. D. M., in California.

Since the filing of that suit attorneys for permittees and applicants for permits have been in consultation. They have about arrived at the conclusion that the McLennan suit is not wide enough to cover the questions they think should be brought up.

In the meantime the McLennan suit hearing, scheduled for June 17, has been postponed, at the request of the Department of the Interior to the week beginning July 7. It may be heard on July 6, the uncertainty arising out of the fact that the judges are not able now to definitely arrange their calendars for such litigation.

The McLennan suit is founded on the fact that the permit desired, if granted, would be based on the fact that the plaintiff was the winner in a drawing following the cancellation of a permit. The fees were paid and the subordinates handling the matter recommended to the Secretary of the Interior that he grant the permit. The withdrawal order resulted in the return of the McLennan application.

The lawyers figuring on a broader litigation point out that, even if a writ were issued requiring the issuance of a permit to McLennan, the Secretary of the Interior could well say that the decision was applicable only to cases in which the underlying facts were the same and not applicable where the fact was that the applicant had not such preferential standing as in the McLennan case. Their interest lies in the prospective applicants invoking that part of the general leasing law saying that the public lands "shall be subject to disposition" in accordance with the terms of the statute which provide for the issuance of exploration permits. That, as they see the controversy, is the important point the courts should be called upon to consider and decide.

Secretary Wilbur's staff of lawyers is proceeding with the McLennan case on the theory that, if they lose in the lower courts, they will carry the suit to the Supreme Court of the United States. They assume that the lawyers on the other side are prepared to do likewise.

Standards Approved for Coring Equipment

HOUSTON, July 5.—Commercial standardization of diamond core drill fittings, considered to be in the best interests of all branches of the industry, have been approved as a result of a conference held in Chicago by manufacturers, contractors and users.

Minimum standards and dimensional specifications were adopted with agreement that the effective date for new production should be not later than Jan. 1, 1930, and that for the clearance of existing stock should be not later than July 1, 1930.

In order to keep standards continuously in accord with best current practice in the various industries, including oil and mining, the conference appointed a standing committee to consider annually any comment and suggestions looking toward necessary revisions.

The committee is composed of H. C. Johnson, chairman, Sullivan Machinery Co.; R. D. Longyear, E. J. Longyear Manufacturing Co.; B. H. Mott, Mott Core Drilling Co.; Fred Lindhe, Boyles Bros., Vancouver, B. C.; E. L. Derby, Jr., Cleveland Cliffs Iron Mining Co.; T. D. Sturges, Pennsylvania Drilling Co.; and a representative of Smith & Travers to be named later.

I. J. Fairchild of the United States Bureau of Standards was chairman of the conference, which was initiated by the Diamond Core Drill Manufacturers Association itself.

Find the Oil

Then Control Its Production

By B. B. Brooks*

(An Address before Colorado Springs Conservation Conference)

The other side of the picture, as regards government efforts to bring about conservation of natural resources, was presented to the Colorado Springs conference on an interstate oil compact, by B. B. Brooks, former governor of Wyoming, now president of the Rocky Mountain Oil & Gas Association. His remarks are published here.

Gov. Brooks brought to mind the original conservation conference called by Roosevelt 25 years ago when the exhaustion of coal and wood was feared. He was a delegate to that conference, where, he said, oil was scarcely mentioned.

Another 25 years and a third conservation conference may find oil almost forgotten, he said.

Gov. Brooks also brought out the extent to which general development in the public land states is held back by the order withdrawing public lands from exploration for oil resources.

Let the search for oil be carried on, but let the government control it once it is found, he urged. "If oil is found, if it is known to be there, that moment you establish a basis for a bond issue for schools and roads. That moment people can go ahead and courageously face the future in the building of homes and the upbuilding of their industry."—Editor.

I HAVE the advantage of some of my brother delegates to this conference in the fact that it was my privilege, pleasure and profit to attend the first great conservation conference, I believe, called in America. This was nearly 25 years ago, when President Roosevelt sent an invitation to every Governor in our land to bring two aides with him and assemble in the City of Washington to confer and shape future policies, with a view of conserving for the benefit of future years the great natural resources of America. Twenty-five years have passed, and the lesson can be read.

That conference was not assembled as this one was, for any one particular great, fundamental industry, but for all America. Down in the front of the room were such outstanding Americans as Andrew Carnegie, of the great steel industry; that great railroad and empire builder. Hill; that great political evangelist, Bryan; that great labor leader, Gompers; and numerous others who have passed on to their reward.

Oil was scarcely mentioned at that conference. The two outstanding things discussed were the absolute necessity of practicing some kind of restraint, supervision, government control if you please, over the forests of our land and over the coal of our country.

The great experts of America had worked out scientifically that we did not have coal enough to run the machinery of our land over 25 years. We had got to be careful. We could not get the plank to make our board side-walks. We could not get the lumber to build the homes to shelter our people unless we practiced conservation.

That one word "conservation" swept America like a prairie fire. Twenty-five years have passed. What was the result? All the great eastern states have benefitted by taking the resources of their forests. They have built great manufacturing establishments, beautiful parks, wonderful homes, great cities. They have had the benefit of the great coal measures of Virginia, Pennsylvania and other states.

What did they accomplish from the profits of those things? They have spanned America with rails of steel. They have tunnelled the highest mountains. They have bridged the broadest rivers.

They said the lumber was about gone and the coal would soon be exhausted if there was not some way found to conserve it. The only thing they could see that would be instantly effective and lasting was in the public land states. So they set apart all our great forests. They withdrew all our wondrous coal measures, and said: "We are going to keep them to save America."

Twenty-five years have passed. The great, splendid sawmills in our mountains have decayed and passed into oblivion. The great, splendid coal mines in Wyoming, some of them are forgotten now. Of course, if we dig any coal now we get a permit from the Government.

Now, after 25 years what happens? We have the splendid, able administration of the Forestry Service. That great bureau has grown and expanded and increased its number of employes.

What about this great danger that confronted America? What about the people in their homes suffering from cold—no wood to burn, no coal? What about the great furnaces of America and all the great industrial plants? No smoke is coming from the chimneys because we have no coal!

We bring a man out and talk to him about the advantages of a frame dwelling; and he laughs at us and says, "I would not have a frame house. I would not endanger the lives of my family by building a wooden house." Let me tell you, in my lifetime I have never known the elements to challenge successfully the inventive genius of America.

Of course we have conservation—not much discussion about it. Four days after the first notice came out in the papers that they were going to set aside the leasing act, this association which I have the honor of representing wired the Secretary of the Interior and the President asking them for an oil hearing, before he outlined the exact procedure he was going to follow in putting that suspension of exploration of oil so far as the public land states are concerned into effect. And this is the first opportunity I have ever had or the Rocky Mountain Oil and Gas Association has ever had to say a word about it.

BUT what am I to expect 25 years from now? I am called again for the third time in my short and uneventful career. I have spent 50 years in the West, and I would spend another 50 if I could—I am called again for the third time to another conference. This one is forgotten like our lumber and our coal. We have possibilities of oil up in Wyoming—I do not know whether it is

(Continued on Page 72)

*President, Rocky Mountain Oil & Gas Association and former governor of Wyoming.

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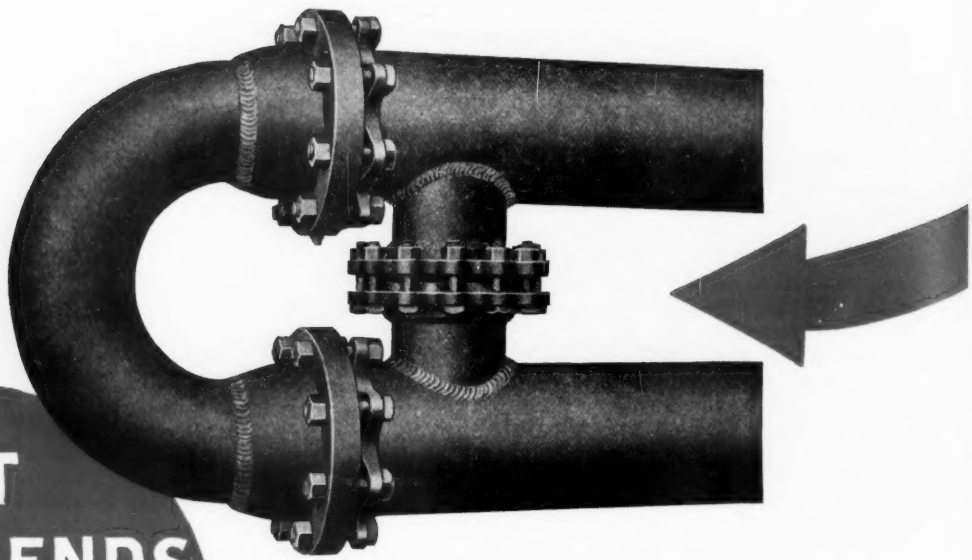

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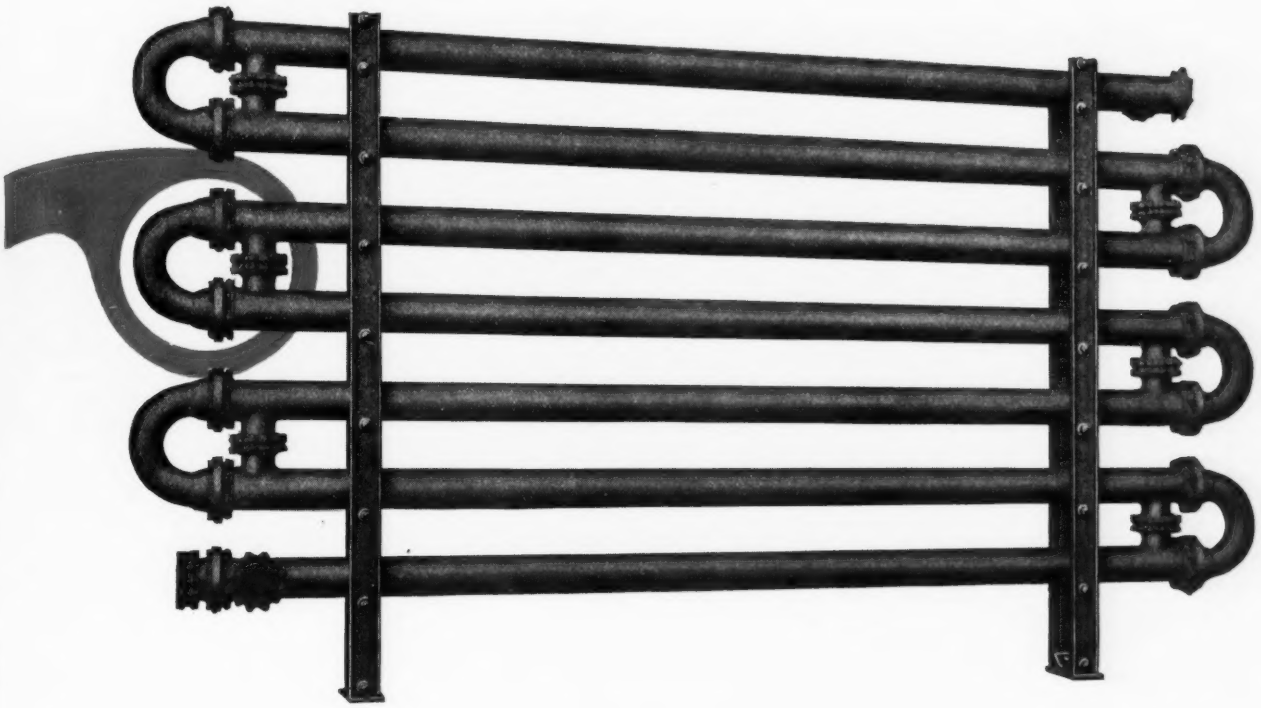

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We will be glad to furnish detailed specifications and recommend the proper surface for any operating conditions given.

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Bulletin HE-1 describes them in detail.

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there or not, but we will try to get some one to go up and see—and they laugh at us and say, "We don't want any of that stuff. We do not want our faces blackened and our hands soiled" and all that.

This may sound like a joke, but only three or four days ago the superintendent of the Northwestern railroad in Casper came up to my desk to say hello to me. Only a few years ago I was interested in a coal mine and was selling coal to the Northwestern system. I quit it and went to oil, and since then for the last few years have been interested in a small way.

He came up and I wanted to talk to him. He had not been buying any fuel oil, and I wanted to sell him a little black oil; and he said, "We have no more use for fuel oil." Quite naturally I asked him, "What are you doing?" He said, "We are going to put on a new style locomotive up here in Casper that generates its own electricity. We are going to run it right through this town without stopping. We expect to have them pulling our trains within the next 60 days. We do not want your oil."

Now, what is this great thing, this great electricity? Nobody knows, yet our marvelous inventive genius of America has taught itself how to grapple with the giant that is absolutely uncontrollable and make it so any little child can handle it safely and well.

There might be stranger things happen, because we have made greater progress in the last ten years than we did since I attended that other conservation Congress 25 years ago. Stranger things have happened than that you will not be using this oil 25 years from now.

We are always anxious to cooperate in every way possible to prevent any waste—to prevent waste of any kind of any of our natural resources. The State of Wyoming has its laws. My friend from California has said they have conservation laws. The State of Wyoming has a law now and has had that you can not waste any gas in Wyoming.

In Salt Creek they have been putting every bit of the gas back into the ground for years. They can not waste it and keep out of the penitentiary. We run our refineries by this natural gas as fuel. You refinery men know that 56 per cent of the expense of running refineries is the fuel cost, and we eliminate that largely by burning gas after they take out the natural gasoline content, and that in a measure enables us to overcome the additional cost of distribution of our product. But if it was not for that we could not do anything.

We are not like California. The chairman has suggested that we might discover a small field, a new one, that would jeopardize the oil picture as it stands today. But perhaps he forgets that we have no ocean near our borders. We can not transport a thing to the outside without terrific expense. We are surrounded—all these Mountain States are surrounded—by a great tariff wall that prevents us going very far with our manufactured products.

Suppose we did bring in a great field in Wyoming, Colorado or any of these Mountain States. What could we do with it? It is not in private hands. The Government controls it. They could refuse to extend permits and control it. If we happen to find an oil field we cannot develop it. We shut it in.

But if it is found, if it is known to be there, that moment you establish a hope for the future; that moment you establish a basis for a bond issue for schools and roads; that moment people can go ahead and courageously face the future in the building of homes and the upbuilding of their industry.

We do not believe that it is the same thing to discover oil and then to waste it. We do not believe that the government or the states will ever be impoverished or endangered by too much oil discovery. We want conservation along broad, generous lines. We do realize that there is an overproduction of oil and a certain amount of waste of gas today that should not be, and we want to cooperate in every way we can. But while we are doing it we who are so at the mercy, if you please, of Federal—as the gentleman from California stated "sympathetic" consideration; we would like a little of that oil. If we ever get it we will be tremendously encouraged, because, like the gentleman from California, we are proud of America. The Independents of our State of Wyoming are the most American part of America. We have no foreign element. We are absolutely loyal to the flag. We are absolutely the loyal supporters of our President and his officials whoever they may be.

We may reserve the right to make suggestions, to even criticize. But we try to do so in some way that will be helpful and uplifting; and perhaps one of these days these public lands States may have the opportunity and the hope of standing on an equal footing with the older States of our great nation.

NEW PATENTS

Prepared by R. E. Burnham, patent and trade-mark attorney, Continental Trust Building, Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

June 25, 1929

PRODUCTION

Pump—Ira A. Weaver, Springfield, Ill. Filed Mar. 31, 1927. No. 1,717,425.

Standing valve inserter and puller—Lewis F. Davis, Santa Ana, Cal. Filed June 10, 1926. No. 1,717,497.

Pump-plunger—John H. Jeffries and Edward M. Doherty, Los Angeles, Cal. Filed June 7, 1926. No. 1,717,508.

Means for compensating for wear on swab-packers—John T. Phipps, Huntington Park, Cal. Filed Feb. 18, 1928. No. 1,717,518.

Multiple-tube inserted pump—Karl P. Neilsen and Daniel E. Byers, Long Beach, Cal. Filed May 2, 1927. No. 1,717,619.

Band-wheel structure—Richard R. Bloss, Columbus, Ohio, assignor to International Derrick & Equipment Co., same place. Filed Aug. 29, 1925. No. 1,717,655.

Oil-well-tool jar—Earl S. Hartson, Los Angeles, Cal. Filed May 9, 1928. No. 1,717,972.

MISCELLANEOUS

Self-operating filling-station—Lewis P. Starkey, Fort Collins, Colo. Filed July 5, 1927. No. 1,717,743.

Apparatus for chemically treating natural oils—Jesse L. Taylor and Christopher L. Howser, Smackover, Ark. Filed Oct. 26, 1926. No. 1,717,744

Apparatus for distilling oil shale—Kenneth E. Clayton-Kennedy, New York, N. Y., assignor to American Hydrocarbon Co. Filed May 4, 1926. No 1,717,786.

Process of treating tarry matter, heavy hydrocarbon residues, and the like—Alexander S. Knowles, St. Louis, Mo., assignor to Tar & Petroleum Process Co., Chicago, Ill. Filed June 12, 1925. No. 1,717,884.

Dispensing apparatus—Harry D. Smith, East St. Louis, Ill., assignor to St. Louis Pump & Equipment Co., St. Louis, Mo. Filed Jan. 8, 1925. No. 1,717,944.

Baffle for oil and gas separators—Millard F. Waters, Tulsa, Okla., assignor to Smith Separator Co., same place. Filed July 2, 1928. No. 1,718,013.

REFINING

Method of refining petroleum oil—Roy Cross, Kansas City, Mo., assignor to Cross Development Corporation, Wilmington, Del. Filed Dec. 17, 1924. No. 1,718,218.

Art of cracking hydrocarbon oils—Harry L. Pelzer, Highland, Ind., assignor to Sinclair Refining Co., New York, N. Y. Filed Apr. 11, 1928. No. 1,718,375.

Apparatus for oxidizing hydrocarbon oils—John C. Black, Destrehan, La., and Wirt D. Rial, Los Angeles county, Cal., assignors to Pan American Petroleum Co., Los Angeles, Cal. Filed Nov. 23, 1926. No. 1,718,679.

Process of purifying hydrocarbon oils—Louis Link and Maurice B. Amis, Baton Rouge, La., assignors to Standard Oil Development Co., Filed Dec. 9, 1925. No. 1,718,714.

Process for treating hydrocarbon oils—Charles J. Greenstreet, New York, N. Y., assignor to Gasoline Corporation, same place. Filed Aug. 9, 1920. No. 1,718,913.

PRODUCTION

Tube-rack for derricks—Quincy C. Webb, Kaw City, and George Carlton, Pawhuska, Okla. Filed May 1, 1928. No. 1,718,395.

Leak-indicator and cementing-plug—Paul H. Granger, Los Angeles, Cal. Filed Sept. 11, 1928. No. 1,718,416.

Oil-well tongs or wrench—James S. Turner, Oxnard, Cal., assignor to Byron Jackson Pump Co., West Berkeley, Cal. Filed Dec. 12, 1922. No. 1, 718,719.

Fishing apparatus for deep wells—Reuben C. Baker, Coalinger, Cal. Filed June 15, 1927. No. 1,718,771.

MISCELLANEOUS

Soaps from sulphonated mineral-oil acid sludge and method of making them—Orville E. Cushman and Theodore W. Doell, Berkeley, Cal., assignors to Standard Oil Co. of California. Filed July 28, 1923. No. 1,718,335.

Art of manufacturing paraffin—Clarence A. Ward, Linden, N. J., assignor to Standard Oil Development Co. Filed Nov. 20, 1925. No. 1,718,672.

Oil-tank bracing—Le Roy A. Prescott, Muskegon, Mich., assignor to Bennett Pumps Corp., same place. Filed June 11, 1928. No. 1,718,833.

Refinery Research Laboratory Tied To Practical Plant Operation

By Paul Truesdell
N. P. N. STAFF WRITER

Article 2

FORT WORTH

NO WAX.

Lubricating oils produced at the refinery of the Texas Pacific Coal & Oil Co. here are claimed to be entirely free from wax. It is to this feature that their characteristics are attributed by Dr. E. R. Lederer, vice-president of the Texas Pacific, in charge of manufacturing.

The characteristics of the oils, which are designed primarily for use in airplane engines and the engines of speedy and hard driven automobiles, are high viscosity at the high temperatures encountered in the operation of automobiles subjected to hard service, and fluidity at the low temperatures found in northern climates in the winter or in high altitudes for airplanes.

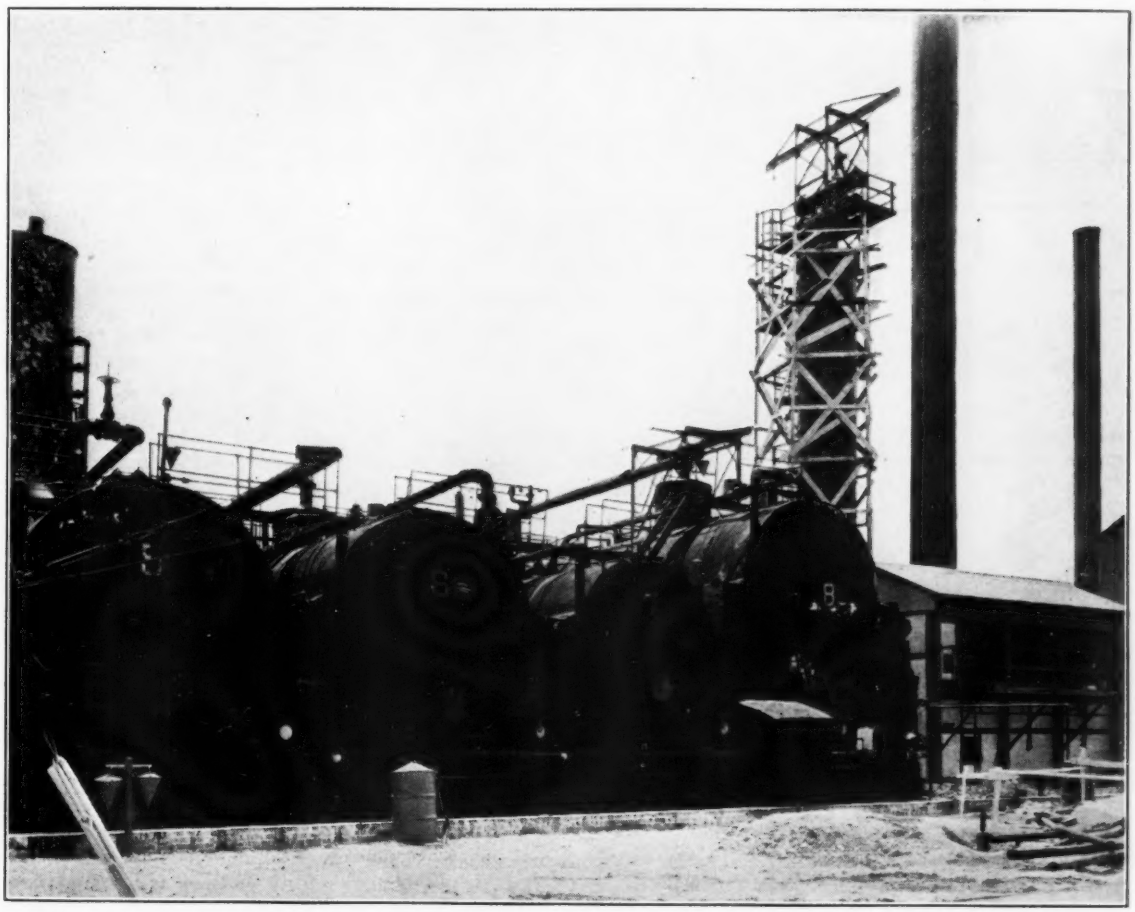
The viscosity under heat is held to assure lubrication of the moving parts under severe conditions and the property of fluidity at low temperatures is believed to permit the starting of a cold engine with minimum frictional resistance from the oil and to assure good distribution by the oil pump to the bearings.

The advantage of such an oil in an airplane engine is that it tends to maintain its viscosity in service and at the same time flow through the pump when the plane is at high, cold altitudes or when starting the plane on the ground in cold weather.

Complete dewaxing of the oil is made possible, in the opinion of Dr. Lederer, by three factors. These are careful control of temperatures during distillation, very low chilling temperatures before centrifuging and careful control of the speed of the centrifugal machines that separate the wax from the oil. A special dewaxing method is used for TP Aero Oils which fully eliminates all wax and for which patents are pending.

Notwithstanding that the Ranger crude on which the plant operates exclusively is a paraffin base oil very like Pennsylvania crude, the lubricating oils made at the Texas Pacific refinery all are acid treated, contrary to Pennsylvania refining practice. It is contended that this "pretreatment" of the original stock "takes out unsaturated and other obnoxious hydrocarbons, which exist in every crude, and prevents 'sludging' of the finished oils in operation."

Before going further into the proc-



Rerun pipe still and bubble tower being erected by Smith & Leslie at the Fort Worth refinery of the Texas Pacific Coal & Oil Co.

essing of the long residuum to make finished lubricating oils, now would be a good time to describe the method of preparing the clay for the contact filtering operation which is an important step in the manufacture of these oils.

The clay used is known as Palex No. 1 and comes from California. Chemists made many tests on many samples of clay from various fields of the country in the Texas Pacific laboratory but found that the grade now being used is best for their purpose. The clay is brought to the plant in box cars in a lumpy state.

It is unloaded by a power scoop into a pit from which it is picked up by an elevator and carried to the top floor of the clay house. The clay is discharged by the elevator onto a belt conveyor which dumps it into hopper-bottom steel bins.

From the bins the clay is fed by gravity to a motor-driven grinder which reduces it to such a size that 85 to 90 per cent will pass through a 200-mesh screen. From the grinder the fine clay is carried into a feed hopper above a small dump car which runs on slanting tracks above an opening in the top of a big lead-lined steel cooking tank.

The car is automatically operated by a tripper controlled by a weighing scale. When enough clay has been run into the car to reach a predetermined weight, the car is released and runs down to dump its load into the cooking tank. In this tank the clay is mixed with weak sulfuric acid and cooked with live steam.

After cooking it is washed with water in tanks of California fir because of its corrosive action on steel. It is later stored until wanted in similar wooden tanks in a state of 80 per cent liquid (mostly water) and 20 per cent solid.

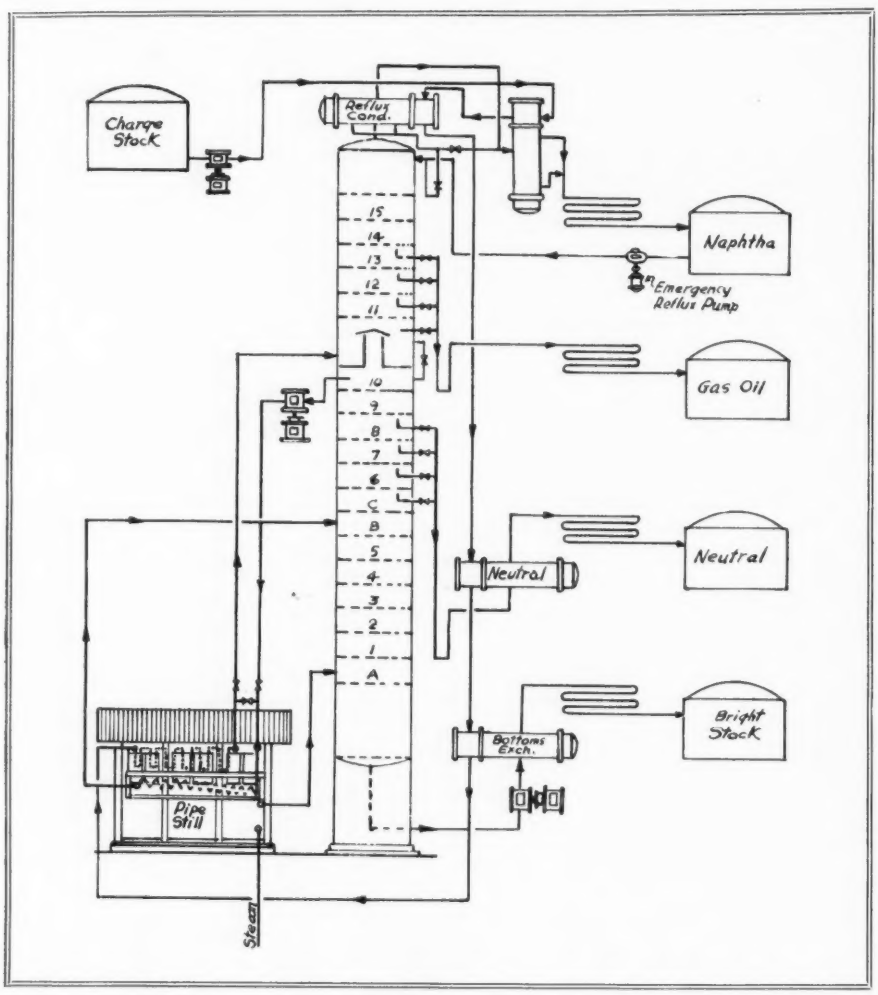
The long residuum as it comes from the last still in the crude battery is first treated in batch agitators with sulfuric acid in the proportion of about 30 pounds of acid to the barrel of oil. It is not neutralized. Thus one usual treating step is avoided. The acid oil goes into the contact mixing tank where it is thoroughly mixed with a predetermined quantity of the clay mud by means of circulating pumps.

Thence it is circulated through a Foster pipe still equipped with a small flash tower and a separating tank. The oil is circulated through the still and separating tank at very high velocity, reaching a volume of about 1340 gallons a minute.

The oil comes out of the pipe still at a temperature of about 410 F. The 80 per cent of water which the mud originally contained when it was mixed with the oil is flashed off as steam in the flash tower and discharged to the air.

A pump takes the clay-bearing oil continuously from the cone bottom of the separating tank and forces it through a cooling coil in which the oil's temperature is reduced to about 120 F. Thence it goes to the blending tanks where it is diluted 50-50 with a special close-cut naphtha. Then the mixture goes through a No. 12 Sweetland filter press where the clay is pressed out under about 50 pounds pressure.

The clay-free oil then passes into another blending tank where 20 per cent more naphtha is added. Next the diluted oil goes into the chilling tanks. For the standard lubricating oils made at the plant, the stock is chilled to about 10 to 12 degrees below zero. For the special airplane and automobile engine oils it is understood that the chilling is carried down to 40 below zero, F.



At right, rerun pipe still and bubble tower unit and at left, the four rerun stills it will replace. No. 9 still in the battery was torn out to make way for the new and modern equipment

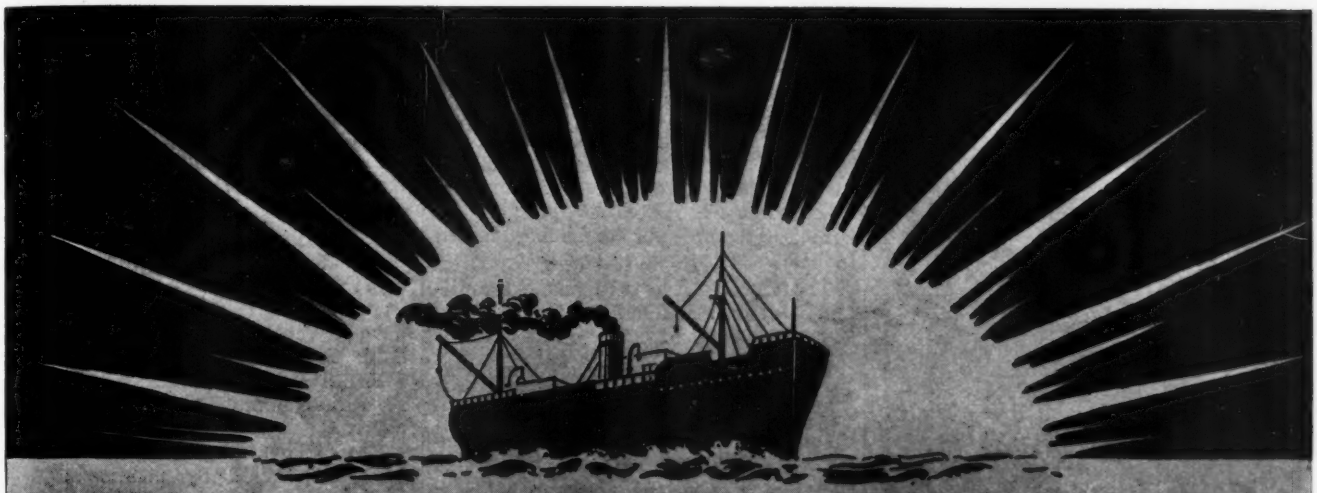
THE refinery is equipped with a standard Carbondale plant delivering 158 tons of refrigeration and it also has a direct ammonia expansion stage developed by Texas Pacific engineers, to carry the chilling of the oil down to the extremely low temperatures.

From the chilling tanks, the oil is pumped to an elevated equalizing tank in the top of the centrifuge house, from which it feeds by gravity to the 20 Sharples centrifugal machines.

These centrifuges have been modified from standard practice in size of inlet and outlet orifices and speed. The machines are operated much faster at this plant, it is stated, than the standard speed of 13,000 or 14,000 revolutions per minute which is used at most other centrifugal dewaxing plants. Six more centrifuges are now being added.

At present the dewaxed oil goes to a battery of four shell rerun stills, as mentioned in the previous article. Each of the stills is equipped with a bubble tower. In these stills the diluent naphtha and non-viscous neutral are taken off and as much of the viscous neutral as is necessary to make a finished oil of the characteristics desired.

This method of making finished oils or stocks of any desired viscosity without blending, Dr. Lederer says, removes all the non-viscous neutrals



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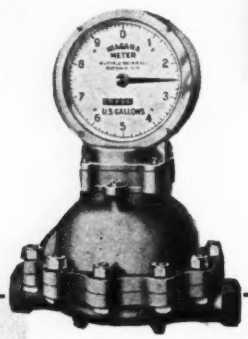

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and wax which have no lubricating value and assures oils that are 100 per cent lubricant.

The fluidity machine mentioned in the previous article as one of the features of the laboratory, consists of a modified Saybolt viscosimeter inclosed in a small automatic refrigerating machine that makes it possible to chill the sample of oil being tested to below zero temperatures.

The viscosimeter tube has a 3-millimeter orifice, instead of the regular Saybolt normal of 1.765 millimeters.

It is connected with a compressed air line equipped with a pressure gage. The stem of the thermometer, the bulb of which is immersed in the oil, extends out through the insulation that covers the viscosimeter.

Here is a report of Chief Chemist Staley on tests run on the fluidity machine on five samples of Grade 4 Aero Oils from different crudes.

COMPARATIVE FLUIDITY DATE ON GRADE 4

Aero Oils at Sub-Zero

Crude Temperature F.	Ranger Zero Pour Test	Asphalt Zero Pour Test	Pennsylvania* 15 Pour Test	Pennsylvania* 25 Pour Test	Pennsylvania* 35 Pour Test
	Temperatures — Seconds to Deliver 60 cubic Centimeters of Oil				
Zero	2,432	1,691	15,944	13,274	41,000
Minus 5	5,274	5,874	22,262	27,315	89,000
Minus 10	11,400	9,410	36,584	Solid†	Solid†
Minus 15	19,899	22,474	56,682	Solid†	Solid†
Minus 20	39,800	53,730	Solid†	.....	.....
			Required 15 Lbs. Pressure	Required 10 Lbs. Pressure	Required 20‡ Lbs. Pressure

*The three Pennsylvania oils tested have different wax content and different pour points.
†Solid means that the oil will not move under 7 pounds pressure.
‡Means pounds pressure required to move the oil through the outlet tube.

The pipe still, mentioned in Article 1 that is now being constructed to replace the four rerun stills, was designed and is being built by Smith & Leslie. It will have a capacity for rerunning 3000 barrels a day and will operate continuously instead of semi-continuous or batch as the rerun stills now run.

According to present plans, the cold oil coming from the centrifuges at around zero will pass through two Griscom-Russell heat exchangers counter-current to the vapors leaving the top of the tower at about 400 F. Thus preheated, it is expected that the oil will enter the pipe still at about 200 to 225 F. The naphtha vapors will be taken overhead from the tower through the heat exchangers and the various cuts of non-viscous and viscous neutrals will be taken off as side streams in the amount necessary to make an oil of the desired viscosity, flash and fire. The finished motor oil or stock will be drawn off from the bottom of the tower.

An interesting system is used at this plant for handling the acid sludge, making a needed product on one hand and a suitable fuel for plant use on the other.

As before stated, the long residuum is treated before filtering with about 30 pounds of sulfuric acid to the barrel. The sludge resulting from this treatment is placed in a lead-lined steel tank where it is boiled with live steam. An acid layer rises to the top during the cooking process and this is siphoned into a lead-lined tank.

About 20 to 25 tons a day of weak acid—about 20 A.P.I. gravity—is thus recovered. This is exactly the quantity and strength that is required for the treating of the clay for filtering. As before stated, clay and weak acid are cooked together in a steel tank and afterward washed with water.

The heavy sludge resulting from the separation of the acid by cooking as described, is mixed off with about 25 per cent of the cracked fuel oil from the Cross unit and pumped to fuel oil storage by means of a Quimby screw pump with brass working parts.

From the storage tanks the sludge fuel is pumped by means of brass rotary pumps through a loop system to all boiler and still furnaces. The fuel does not separate and it is not necessary to keep it hot and constantly circulating, it is stated, because the right percentage of oil is mixed with the sludge to make a stable mixture.

Problems in connection with handling this acidulous fuel were solved by the installation of brass equipment throughout the fuel system. All pumps and lines which handle the fuel are of solid brass. It is explained that the action of sulfuric acid on iron and brass are just opposite. Strong acid will not attack iron very much but it is destructive to brass; weak acid has little effect on brass but is very destructive to iron.

It would seem at first glance that installation of brass pumps and fittings to handle the plant fuel would be too expensive to justify itself. However, Dr. Lederer says this is not so. He has tried both steel and brass fuel distributing systems. He states that when steel was used for this service the maintenance costs of the system, due to corrosion, ran about $2000 to $3000 a month.

The brass installation was put in at a total cost of about $8000 and in the two years it has been operating the maintenance cost has never been more than $200 a month and averages considerably less than that. Dr. Lederer has also found that it is not necessary to use a special burner for handling the fuel although he does use brass burners. These are made in the plant at a cost of about $5 each, he says.

(The End)

Refiners Install New Furnaces

WARREN, Pa., July 5.—The McKean County Refining Co. has recently bought a 40-ton Nichols-Herreshoff furnace for roasting fuller's earth. This is the second installation in this plant, the first, a 15-ton furnace, having been installed in 1926. Both were put in under the supervision of the G. G. Brockway Co. The capacity of the furnaces is expressed in tons per 24 hours the furnace is able to handle.

The Ohio Valley Refining Co. recently installed a 60-ton Nichols-Herreshoff furnace with 10 roasting hearths each 16 feet in diameter.

Glen Brockway, head of the G. G. Brockway Co. says 30 Nichols-Herreshoff furnaces are either operating or are being installed in American refineries. The company is also doing laboratory work to develop the Nichols-Herreshoff type of roasting furnace suitable for use in other industries. One has been sold for calcining diatomaceous earth used in manufacturing insulating brick.

Book Reviews

The Engineering Index for 1928 has just been published by the American Society of Mechanical Engineers. The index is a two volume encyclopedic bibliography of periodical engineering literature embracing all branches.

In preparing the work 1700 periodicals have been reviewed. In the 2000 pages 75,000 reference items on 5000 subjects are given. The index sells at $125.

A. P. I. Licenses Seven Tank Manufacturers

CLEVELAND, July 6.—Seven manufacturers have been licensed to use the A.P.I. monogram on standard bolted tanks according to an announcement by Carl A. Young, director of the standardization division.

Those licensed are: Black, Sivalls & Bryson Mfg. Co., Los Angeles; Butler Mfg. Co., Kansas City; Columbian Steel Tank Co., Kansas City; Consolidated Steel Corp., Los Angeles; Maloney Tank Mfg. Co., Tulsa; Parkersburg Rig & Reel Co., Parkersburg, W. Va.; and Western Pipe & Steel Co. of Calif., Los Angeles.

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Return Bends
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Greater through-put
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BY reducing turbulence these Frictionless Flow Headers solve the problem of greater efficiency in tube stills and cracking units. Test on actual installations demonstrates that through-put is increased 15 to 20% by these Fittings.
The quicker-acting Ohiolock Plug offers an added economy. "Down time" for tube cleaning is reduced to a minimum. Your units get back 'on-stream' in less time.
Ohiolock Frictionless Return Bends last longer because they are made of Hi-Steel—the cast electric steel known for its long life in high pressure, high temperature service.
Write for the Frictionless Bulletin today and learn how these improved Fittings can increase production for you.
REDUCES TURBULENCE
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New York—75 West St.
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Los Angeles—129 W. Second St.
Houston—410 Union Nat'l Bank
Detroit—304 Blvd. Temple Bldg.
Tulsa—422 Wright Bldg.
Plants in Springfield and Lima

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

THE 25,000-barrel a day refinery being built by the Shell Petroleum Co. on the Houston ship channel will be operating early in August if not before, according to a statement of U. de B. Daly, president of the company. The plant will operate on West Texas crude brought from the fields to the refinery in a pipe line also owned by the Shell.

The refinery occupies a site of about 350 acres and is of most modern construction. It is stated that specially designed equipment is being put in for the manufacture of anti-knock, high volatility fuel. The Shell has other refineries at Wood River Ill., East Chicago, Ind., Arkansas City, Kans., New Orleans.

* * *

THE Franklin Quality Refining Co. with a refinery at Franklin, Pa., was placed in the hands of a temporary receiver by the common pleas court of Venango county on June 22, according to a statement from the court. H. Carl Wasson is the receiver who is to hold office until July 8, at which time a hearing in the case will be held in the court house at Franklin. The plaintiff in the receivership action is the Butler Consolidated Coal Co.

* * *

A NEW special gasoline was to be launched by the Pennsylvania Oil Products Refining Co. at its filling stations in New York state on July 4, according to Harry F. Hayden, sales manager. The gasoline is to be named Betty Blue and is to be pushed by means of an extensive advertising campaign. It is claimed that the new fuel, has good starting and anti-knock qualities but it is to be sold at the regular market price. M. F. Cowden is president of the Pennsylvania Oil Products Refining Co. the headquarters of which are in Warren, Pa. The refinery is located at Eldred, Pa.

* * *

CARBON dioxide has been put to use as a fire extinguishing agent in two sizes of portable hand extinguishers that have just been brought out by American LaFrance and Foamite Corp. The extinguishers are recommended by the company for use in extinguishing fires in gasoline and other oils as well as in alcohol, paint, varnish and electrical equipment.

The company states that the gas with which the hand extinguishers are charged is a special grade of carbon dioxide sealed in the cylinders in a liquid state. The working of the portable extinguisher is described as follows: "When the extinguisher is actuated by raising a control handle a plunger ruptures a copper disk and allows the liquefied gas to escape. When it reaches the air it immediately turns into CO_2 gas and expands about 450 times. The gas is able to penetrate every crack and crevice, diluting the oxygen content of the air to such an extent that combustion is impossible and the fire is snuffed out almost instantly. The extinguishers are said to be freeze proof and leak proof.

* * *

A D. DAVID, for five years manager of refineries of the Continental Oil Co., Denver, has resigned that position effective July 1 to join the staff of the M. W. Kellogg Co., New York. The Continental Oil Co. was recently merged with the Marland Oil Co., the combination taking the Continental Oil Co. name.

Walter Miller who for years has been a director of the Marland Refining Co. in charge of manufacturing, is vice president of the Continental in charge of manufacturing.

* * *

WALKING down the street in Warren, Pa., the other day I met George P. Brockway, former president of the Seneca Oil Works at Warren. Mr. Brockway, after almost 40 years as a refiner, sold his interests to the Swan & Finch Co. which is now operating the plant renamed the Swan-Finch Refining Co.

Immediately after selling out, Mr. Brockway went to California where he has been living ever since in San Diego.

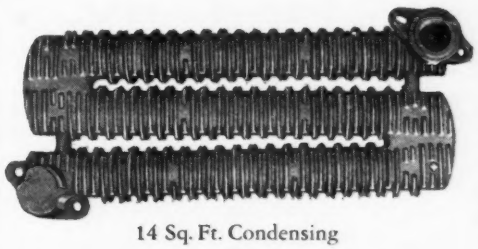
He came back to Warren about a month ago and says he may remain there for a month or two longer before returning to the west coast.

* * *

CONSIDERABLE construction work is under way at the Swan-Finch refinery at Warren according to Harry Peterson, superintendent, in addition to some that has been completed. The latter includes installation of an additional horizontal return tubular boiler of 250 horsepower and a loading rack of steel and concrete with capacity to handle seven cars at a time.

Three bubble towers, one designed by Harold S. Bell and two by E. H. Leslie, are being installed. One of the towers will be put on a rerun still to improve fractionation so that most of the wax distillate can be taken overhead in pressible form without cracking. Another tower is to be put on a crude still and will take off special naphtha cuts in addition to the regular gasoline stream.

One of the Bruin cracking stills which have been shut down for some time is to be removed from its present setting and set in the crude battery to increase the crude capacity of the plant.



14 Sq. Ft. Condensing

Summer accentuates at least one refinery problem

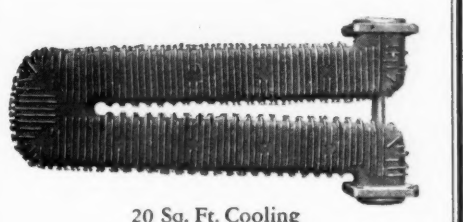
High final temperature of distillates flowing to the run-down tank results in high evaporation loss.

Summer heat coupled with higher initial temperature of condensing water can scarcely be avoided.

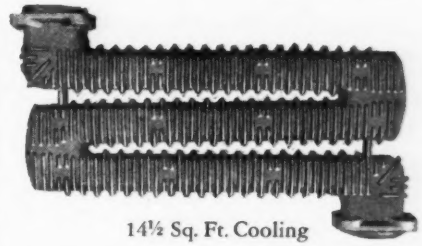
It is possible, and economical, to install condensers that insure a minimum temperature difference between entering water and final distillate stream.

Sterling Oil Condensing and Cooling Sections have abundantly demonstrated their ability in this work over a long period of years in many plants in many countries in both hemispheres.

You may have just such a problem. Our representatives will be glad to consult with you without any obligation on your part.



20 Sq. Ft. Cooling



14½ Sq. Ft. Cooling

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Plant at Springfield, Ill.

Tank Wagons Used by Philfuels Co. To Deliver Liquefied Gas

Delivering Philgas to the customer's drum is done by tank truck. The delivery man in the picture above is just preparing to make a connection with the flexible, metallic hose

By Allen S. James
N. P. N. STAFF WRITER

BARTLESVILLE

GAS by the pound for cooking the family meal, or by the tank car load for supplying "artificial gas" to whole communities is a new branch of the petroleum industry which Philfuels Co., a subsidiary of the Phillips Petroleum Co. of Bartlesville, has developed successfully the past two years as a result of intensive study of the possibilities of liquefied petroleum gases.

At the present time the trademarked gases "Philfuels" are being distributed to thousands of homes in several communities, are being used by a number of automobile and industrial manufacturers for certain heating operations, by gas manufacturers for enrichment of artificial gas and to augment the gas supply at peak load intervals, and for mixtures to make "artificial gas" to supplant the former methods of making it.

The company has made no effort to compete with natural gas and only in rare instances with artificial gas. Despite this policy, however, company officials have expressed the opinion that the potential market has hardly been touched. George G. Oberfell, executive vice president of Philfuels Co., and Director of Research for Phillips Petroleum Co., has estimated a consumption of 7,000,000 gallons of the fuels in 1928 and has predicted this consumption will be trebled in 1929. It was not until along in 1927 that the first fuel was put on the market by the Philfuels Co.

If Mr. Oberfell's prediction proves true the consumption will be approximately 21,000,000 gallons for the year 1929, or 1,750,000 gallons a month. That amount is equal to 218 tank cars of 8000 gallons capacity per month, or approximately seven cars a day.

In the domestic field the sales effort has been directed at communities too far removed from natural or artificial gas mains for economical service. Particular attention has been paid to suburbs near some of the larger cities. At the present time the company has a service station in a community near Detroit, one near Cleveland, three near New York, and one each near Boston, Baltimore, Washington and Indianapolis.

THE market possibilities in the commercial or industrial field are greater. The company has found the fuel, due to heat control and purity, adaptable to scores of heating operations, the more important of which are:

Hardening, annealing, carburizing, patenting, lacquer baking, sanitary ware, china, glass, baking, melting, drying, singeing, coffee roasting, cereal industry, mould drying, core baking, calendaring, cutting, bright annealing, enameling on steel, paint and varnish

THE distribution of liquefied gas in important quantities is one of the latest enterprises of the natural gasoline branch of our industry. Although this fuel was made 50 years ago, it has been only in the past four years that it's manufacture has assumed commercial importance.

It is estimated that there are now 50,000 domestic consumers of bottled gas in the United States. Consumption in 1928 is estimated at 7,000,000 gallons. This year it is believed that the consumption will be trebled.

The accompanying article describes how one of the largest manufacturers of the product has worked out the problem of distribution on a low cost basis. It is the first complete discussion of this phase of the industry to be published in an oil trade paper. —Editor.

Cracking gas oil and degrading the major portion of it into fuel oil, itself a drug on the market, is a harmful practice Such an operation is an economic waste and injures every refiner who has his reasonable share of fuel oil to dispose of

Refiners operating the Dubbs Cracking Process by the non-residuum method, cracking drug-on-the-market fuel oil and producing nothing but gasoline and coke, are doing their best to offset the bad effects of such refining At the same time they are reaping profits which the other fellows never can duplicate

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

A close up of the business end of a Philgas tank truck. The control valves, pressure gauge and the flexible hose are shown. The cylinder is the standard I. C. C. No. 27, 1000 lb. type. A pressure pump is mounted just ahead of the left rear wheels, for forcing the liquid under pressure into the customers' drums

cooking, block testing of engines and internal combustion engine fuel.

Company officials decided that if they were to enter the domestic field with the new type of fuel, a maximum of service to the household with a minimum of cost would be necessary. The first installations were of the "two-drum" system. A cabinet containing two charged cylinders were installed along with the gas range. The customer paid so much for each charged cylinder when it replaced an exhausted one.

When one cylinder became exhausted the customer had to unlock the cabinet, turn off the valve on the exhausted cylinder, and open the valve on the charged cylinder so it could furnish the fuel. Then the customer had to phone the agent who picked up the empty cylinder and left in its place a charged one.

For the customer this meant a bit of work for his money. For the company it meant having two drums always out with each installation, and others in transit either to or from the filling stations. The cost of installation to the customer for that type of system was around $150 to $200. The cost of maintenance to the company with the four to six cylinders needed per unit was high.

The one-drum system was then devised and first released to the market in May, 1928. With this system the company now provides customers with a fuel service identical in convenience to the service large gas corporations provide in cities. The customer never has to touch the equipment in any way. He receives a "gas bill" once a month, and is required to pay only for the fuel he has consumed.

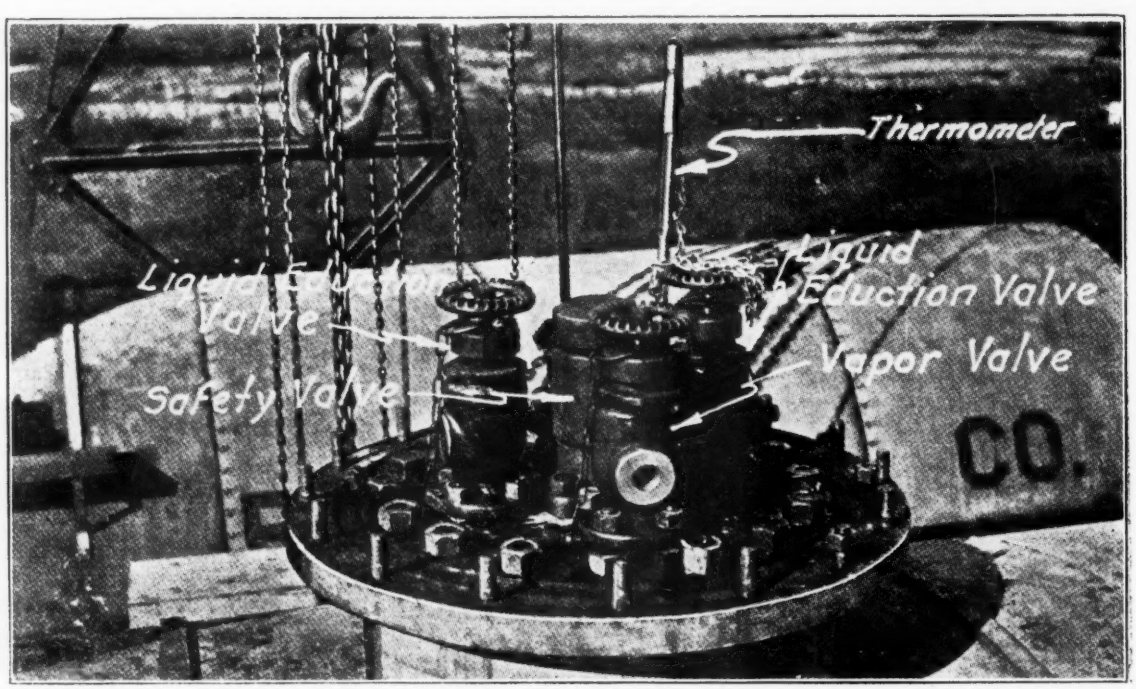
The company has a gas service charge of $36.50 for each installation. This fee guarantees the consumer a constant supply of fuel. Under this arrangement the cost to the consumer of an installation has been cut about in half.

When an installation is made, a drum which is enclosed in a steel cabinet, is connected to the gas range. The drum contains 100 pounds of the liquid under pressure. This amount is sufficient for the average family for about two months.

Once a month the delivery man for the company drives up to the customer's installation, unlocks the cabinet and by means of a tripod which fits the rim of the cabinet, lifts up the drum and weighs it with a beam scale set for the desired filling weight.

He then fills the cylinder from a tank truck by means of a pressure pump, the liquid being forced through a flexible hose. When the cylinder is filled, the delivery man notes the weight and determines how many pounds of the liquid he has placed in the cylinder.

The first of the month the customer receives a bill for the number of pounds of fuel he has consumed, at



A special dome is required for tank cars handling liquefied petroleum gases. The above picture shows the dome of a tank car with cover removed and the various controls marked

the rate of 9 to 12 cents a pound. While that rate may seem high, distribution costs are heavy and the customer's bill actually corresponds with about $2 per thousand cubic feet for artificial gas. There are many cities which have a $2 per 1000 cu. ft. gas rate.

All the worry as to the gas supply is taken off the customer. The customer does not even have a key to the cabinet containing the drum.

A service as outlined means the company must have a bulk station, similar in many respects to the bulk gasoline station. Storage tanks made for certain pressures are required, as well as pressure pumps.

THE tank truck is a specially constructed one on which has been mounted an I. C. C. No. 27, 1000-pound cylinder. An accompanying picture shows one of the trucks, with the driver preparing to refill a drum. It gives a fairly clear idea of the truck. It is not necessary for the truck to be as close to the cabinet as the one in the picture, since the truck is equipped with a long length of flexible metallic hose.

One tank truck in a concentrated area can handle approximately 500 customers a month. The estimated cost of a bulk plant which could service approximately a thousand customers a month is shown in Table No. 1. This table does not include real estate, railroad siding costs, or cost of tank truck.

The company has a few wholesale customers in the domestic gas field. These customers buy Philgas in tank car lots, bottle it at their stations and distribute it themselves.

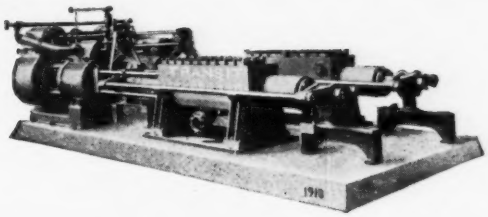
When the fuel is used as a mixture for supplying "artificial gas" the vaporized fuel is mixed with air and turned directly into the community's gas mains. There is no danger of condensation since experiments have shown that the dew point of the mixture is considerably lower than any temperatures which might be encountered.

Where the fuel is used for gas enrichment, it is released directly into the manufactured gas. The average gas manufactured from coal has a B. t. u. value which is not sufficiently high for ordinary conditions. The old method of enrichment was to spray gas oil over heated checkerwork, and the cracking which resulted released gases sufficiently rich to bring the artificial gas up to 500 to 600 B. t. u. With Philfuels no heating is required.

There are certain hours of the day when an artificial gas plant has a peak load. To handle this load it often is necessary to have equipment sufficiently large to take care of the peak, which means a heavy investment in equipment idle much of the time. Philfuels is being used in some plants to

Rigid — Strong

TRANSIT HOT OIL PUMPS



The above is an illustration of a very representative Hot Oil Pump, one of the complete line. Great rigidity and strength are built into TRANSIT Hot Oil PUMPS just the same as they have always been built into other TRANSIT PUMPS.

The pump illustrated is a 32 & 48 x 8½ x 24" TRANSIT Hot Oil PUMP. Capacity 329 gallons per minute, 1500 lbs., pressure, and oil up to 1000° F., in temperature.

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Filter Presses *Wax Moulding Presses*
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Complete Wax Plants designed and built
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Improve your gasoline quality,
and
Reduce your refining costs.

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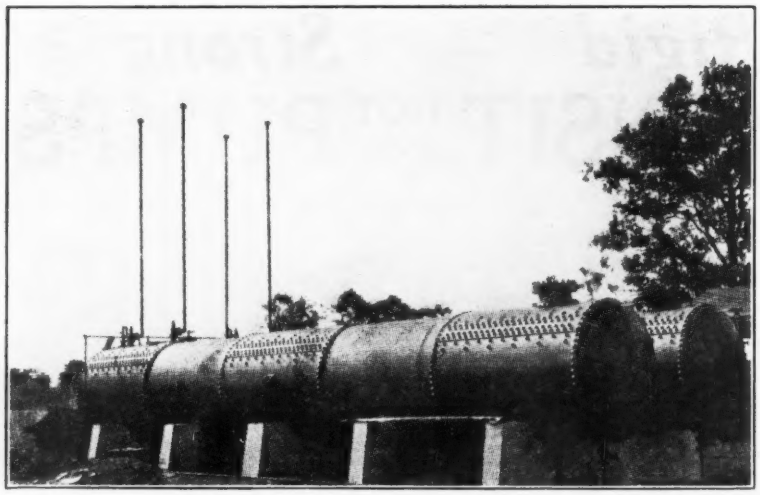


Type of storage or bulk plant necessary to handle liquefied petroleum gas. The picture above is of one of the bulk plants of the Philfuels Co.

supply the additional gas necessary during the peak load intervals.

Liquefied petroleum gas was first made more than 50 years ago but it was not until about four years ago that natural gasoline manufacturers generally made a serious study of its possibilities, and a survey of a potential market. The Phillips Petroleum Co. is not the only natural gasoline manufacturer in the Mid-Continent manufacturing the gas at the present time, but the company through its subsidiary, the Philfuels Co., probably has entered the field more widely than any other manufacturer and so far is the only one selling the butanes.

The liquefied gases are manufactured from natural gasoline. The natural gasoline is extracted from natural gas, and the lighter fractions of the natural gasoline—propane and butanes—are then separated in the form of vapors, then recondensed and kept in a liquid state by means of pressure.

When natural gasoline was first used for blending with refinery gasolines refiners gave little attention to the natural gasoline specifications. Their refinery methods were not as efficient as they are at the present time, and some of the lighter fractions of natural gasoline were needed more than now.

Much of these lighter fractions now are produced at the refineries, and as this condition became more prevalent, refiners demanded a more stable natural gasoline and the specifications became more rigid. A good portion of the properties which now go to make the Philfuels has to be taken out of natural gasoline before it can be sold to blenders.

The liquefield petroleum gas sold by the Philfuels Co. for domestic use is propane and is trade-marked "Philgas." The industrial fuel is composed primarily of butanes. In table No. 2 are given the major physical and chemical properties of the two liquids.

Considerable research was required before the fuels could be put on the market. The physical properties and methods of testing had to be worked out. A method of transporting the fuel in sizable quantities was necessary.

After studying the construction of other high pressure tank cars a new type was designed and approved which permitted the liquid to be loaded under pressure. These cars are known as the 104A and 105A cars.

Freight classifications were inadequate for these relatively new commodities at the beginning of the recently aggressive marketing campaign. Such rates as could be applied were

Table No. 1

Approximate Cost of Installing Bulk Station for Liquefied Petroleum Gas, Which Will Service Approximately a Thousand Customers

One 7′ x 40′ 11,500 gallon riveted steel pressure storage tank complete and installed	$ 4,100.00
One power driven liquid fuel pump	600.00
One 3 H. P. motor and starter	300.00
One transmission and speed reducer	300.00
One pump house, motor house and foundations	500.00
One 20′ x 36′ warehouse (steel frame galvanized iron covering)	2,000.00
Fence	800.00
R. R. Spur	
Real Estate	
Valves, piping, fittings, etc.	1,000.00
Scales	100.00
Labor and transportation	500.00
Contingent	1,000.00
Total, less Real Estate and R. R. Spur	$11,200.00

Table No. 2

Properties of Two Grades of Liquefied Petroleum Gas Manufactured by the Philfuels Co. The G-3 Fuel Is for Domestic Consumers and the G-4 for Industrial Use

	G-3 (Propane)	G-4 (Butanes)
Vapor Pressure, Lb. per Sq. In. Gage		
At 70° F.	120	33
At 90° F.	165	53
At 100° F.	105	65
At 105° F.	210	71
At 130° F.	300	110
Temp. at which pressure is 0 lb. per sq. in. gage, deg. F.	—44	15
Specific gravity of liquid (water = 1)	.509	.576
A.P.I. gravity of liquid, deg. A.P.I. 60/60 deg. F	146.4	114.2
Initial boiling point, deg. F	—45	12
Final boiling point, deg. F.	—40	30
Weight per gallon of liquid in pounds	4.24	4.8
Mean Coefficient of Thermal Expansion		
From 0° F. to 50° F.	.001316	.000908
From 50° F. to 100° F.	.00174	.00118
Specific gravity of gas (air = 1)	1.523	1.95
Specific heat of vapor at 60° F. (Cp.)	.475	.458
Dew point at 14.7 lb. absolute, deg. F	—44	26
Cubic feet of gas per lb. of liquid	8.49	6.7
Cubic feet of gas per gal. of liquid	36	32
Maximum Limits of Inflammability (Bulletin 279, Bureau of Mines, Table 26)		
Gas per cent in gas-air mixture for lower explosive limit	2.4	1.9
Gas per cent in gas-air mixture for max. rate of flame propagation	4.7	3.6
Gas per cent in gas-air mixture for upper explosive limit	9.5	8.5
Maximum Rate of Flame Propagation		
Cm. per sec. in 2.5 cm. diam. tube	82.4	82.5
Heating Value		
B.t.u. per cubic foot	2,550	3,200
B.t.u. per pound	21,650	21,420
B.t.u. per gallon	91,800	102,400
Latent Heat of Vaporization at Boiling Point		
B.t.u. per pound	186	170
B.t.u. per gallon	788	830

entirely out of proportion to the market value of the products. The interested companies have succeeded in obtaining definite classifications and equitable rates which have permitted the transportation of the commodities.

Mr. Oberfell in a recent article stated there were approximately 50,000 domestic consumers of liquefied petroleum gas in the United States, and he predicted an increase of 100 per cent in the number of users of this form of fuel in 1929.

Mr. Oberfell also stated that there was available a supply of approximately 750,000 gallons a day, which undoubtedly will find markets at existing competitive prices for the various uses outlined above. Phillips Petroleum Co. at present has an actual production of 50,000 gallons a day of butanes and an immediately available production of approximately 100,000 gallons a day of butanes.

Oil Trademarks For Copyright

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, 900 F St. N. W., Washington, D. C. trade-mark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

"Hi-Fly" No. 282,965. A. & M. Petroleum Co., El Paso. For gasoline and lubricating oils and greases.

"Fedroyl" No. 282,813. Federal Oil Co., Minneapolis. For lubricating oils and greases.

"Aseco" No. 274,428. American Steel Export Co., Inc., New York. For gasoline, and lubricating and motor oils, and greases.

"Zeer-O-Penn" No. 281,578. Tiona Refining Co., Clarendon. For lubricating oils and greases.

"Red Giant Oils" No. 282,208. Leonard E. Van Druff, Council Bluffs. For lubricating oils and greases.

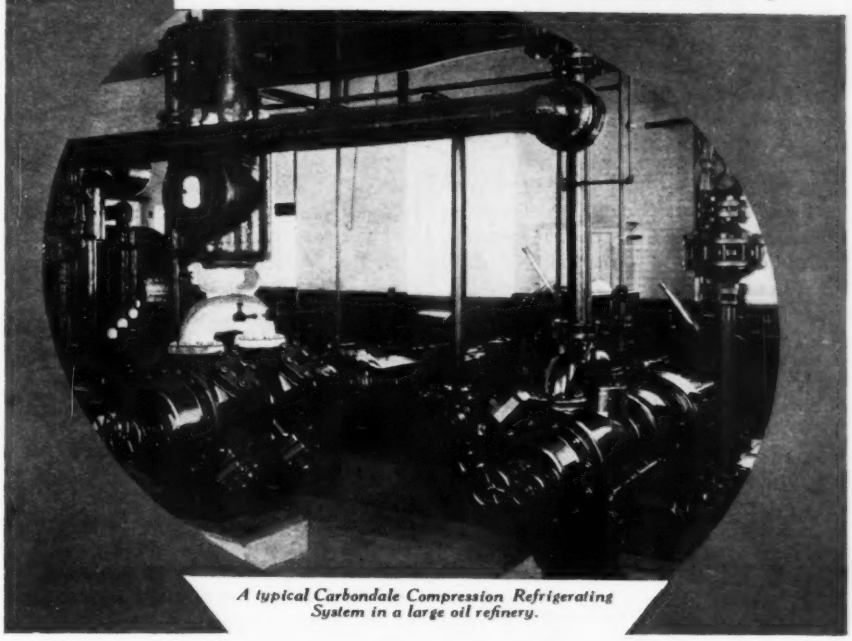
"Sopenna" No. 282,444. Standard Oil Company of Pennsylvania, Philadelphia. For burning, illuminating, power, lubricating, and fuel oils; and lubricating greases.

"Relio" No. 282,475. Richard H. Hussey, Watertown, Mass. For lubricating oil compounds for hot surfaces.

"Free-Squeek" No. 282,656. Arthur Larkins, Cleveland. For lubricating and penetrating oils.

CLEVELAND, July 6.—The Monamotor Oil Co. expects to operate the cracking plant at its newly purchased refinery at Omaha, beginning before fall. At the outset the skimming plant will not be used, gas oil will be shipped in to supply the pressure stills.

-30° F. Brine!



A typical Carbondale Compression Refrigerating System in a large oil refinery.

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Carbondale supplies the refinery with

Compression Refrigerating Systems—
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High Pressure Filter Presses and other Refinery equipment.

TEMPERATURES of -30° F and lower to meet the needs of oil refiners producing the extremely low cold test oils of today are being supplied in many of America's largest refineries by Carbondale Refrigerating Systems.

Carbondale Refrigeration has for more than 30 years kept abreast of the changing demands. It has satisfied every refinery need regardless of temperatures and capacity.

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Treating

Reduction of sulfur in gasoline to prescribed limits is still a chief problem in light oil treating.

The increasing use of vapor phase cracking has brought the problem of gum removal into the refiner's foreground. These developments and progress in methods of decolorizing lube oils, and removal of wax, are being discussed in their various phases in National Petroleum News.

Here are 30 articles for your file reference that have been published on treating in the past 22 months in this publication:

1929

Skimming, cracking, lube making from Ranger paraffin crude June 26, p. 80; June 19, p. 78; June 5, p. 73
De-salting, distillation, light cracking West Texas crude May 29, p. 65
Time a factor in sweetening sour gasoline May 22, p. 78
Treating sulfur out of West Texas gasoline May 15, p. 75
Sulfur compounds and corrosion problems Feb. 27, p. 72
How wash naphtha? With soap and water Feb. 20, p. 61
Hydrogen sulfide gas hazards in West Texas Feb. 20, p. 45
Muskegon gasoline high in sulfur Feb. 6, p. 65

1928

Anglo-Persian bars sulfuric acid as treating agent Dec. 19, p. 64
Many factors affect safe limit for gum in gasoline Dec. 19, p. 75
Sulfur in gasoline Dec. 12, p. 31
Sulfur dioxide process in treating lubes Nov. 14, p. 63
Corrosion in refineries; suggestions Oct. 3, p. 22
Leamon continuous treating process for cracked gasoline Aug. 22, p. 65
Dissolved sulfur gives uniform results July 18, p. 56
Method to determine hydrogen sulfide in distillates July 18, p. 63
Careful fractionation can cut cost of treating cracked gasoline Apr. 25, p. 48
Technical control of refinery processes March 14, p. 144; March 7, p. 51; Feb. 29, p. 76
Wax-free oil pours below zero Feb. 8, p. 22
Treats 8000 barrels gasoline in vapor phase to ton of clay Feb. 1, p. 23
Chemist gives inside stuff on treating today's gasoline Jan. 4, p. 83

1927

Five methods of treating natura gasoline Dec. 7, p. 88
Detection of sulfur in petroleum and distillates Nov. 23, p. 53
Study needed for best treatment of gasoline Oct. 19, p. 57
Treating pressure distillates Sept. 28, p. 51

Back copies of the above issues are 25c a copy. On issues that are exhausted, photostats will be furnished at 40c per page. Libraries in the larger cities generally keep back files of National Petroleum News complete.

National Petroleum News

Main Office: 1213 West Third St.

Cleveland, Ohio

New Equipment to Improve Plants

Personal Notes of the Manufacturers

National Petroleum News

Hills-McCanna Co., 2349-59 Nelson St., Chicago, has issued a bulletin on the Young tank car bottom outlet valve, said to handle any liquid, reduce loss of time at loading rack, cut maintenance costs and eliminate shortages.

* * *

Combustion Engineering Corp., 200 Madison Ave., New York, has published in a recent issue of its "Safety Valve" an article on baffling for straight tube boilers, in which Walter Siegerist, assistant general sales manager, points out how the efficient production of steam depends on correct baffling of the boiler. Various types of baffles are illustrated and described, their relation to straight tube boilers, the materials used with comparative tests of several baffling materials, and various types of baffle arrangements to meet certain combustion requirements.

* * *

The Safety Lift Co., 16 Beaver St., New York, recently placed on the market a free wheel lift, which has such features as an automatically operated, fool-proof safety device. A heavy bar steel standard which adjusts itself to the height at which the lift is raised, forms a rigid support that will not allow the lift to drop before the mechanic is ready to lower it, the company says.

All controls are on the lift. It has minimum air requirements and is of simple mechanism, the piston being the only moving part.

* * *

American Fomon Co., Inc., Drexel Bldg., Philadelphia, has off the press a folder on the uses of Fomon generators for fighting oil fires. The Fomon generator has as its chief characteristics continuous operation, the use of two chemicals, rugged construction, portability and flexibility.

Two chemicals are combined and dissolved in water as required by the generator to produce foam, providing a guarantee against deterioration of chemicals in storage and handling. It will extinguish any kind of oil fire, the company claims.

Diagrammatic sketches illustrate the uses of these generators.

* * *

Erie Meter Systems, Inc., Erie, Pa., manufacturer of gasoline dispensing units, has purchased the factory buildings and property of the old Erie Motor Truck Co. near Wesleyville, Pa., from the Emmerman interests.

This purchase will double the capacity of the present Erie Meter Systems plant, giving it three additional acres of ground. The new plant has a railroad siding with a six-car capacity and more than 25,000 feet of factory space.

* * *

The Griscom-Russell Co., 285 Madison Ave., New York City, manufacturer of heat transfer apparatus for refineries, has opened a new sales office in the Lewis Bldg., Portland, Ore., to handle its Reilly and Bentube evaporators for producing distilled water for boiler feed make-up, U-Fin generator air coolers, miltiwhirl oil coolers, reduction gears, heat exchangers, and other refinery equipment.

* * *

Sterling Motor Truck Co., Milwaukee, reports net profits for the first six months of the fiscal year ended April 30, are almost equal to those of the entire year of 1928. Deliveries of trucks during March and April set new records for monthly deliveries, the company says.

* * *

The Central Tool Co., Oklahoma City, and with a shop at Shawnee, Okla., has also put into operation a shop at Capitol Hill, the seat of operations for the Oklahoma City field. This new shop is under the supervision of R. A. Painter.

* * *

A new line of compressors, employing Timken roller bearings on the main crank shaft journals, has been announced by the Worthington Pump and Machinery Corp. This is the Worthington single horizontal straight line series. Capacities range from 100 to 300 cubic feet per minute and, operating at moderate speeds, maintenance charges and attention are said to be almost completely eliminated.

Oil rings, which deflect the surplus oil and return it to the crank case, are mounted on the shaft beyond the Timken bearings. A special feature is the design of the crankcase enclosure. This is completely oil tight, and free from oil leaks usually found in equipment of this kind. "Feather Valves" are standard equipment on these machines.

Regulation may be of an automatic starter and pressure switch mounted on the motor, stopping and starting it to control the air pressure between definite limits. Or a pressure regulator may be attached to the compressor inlet valves, holding them open to maintain constant air pressure.

Continental Uses Trucks For Near-by Delivery

PONCA CITY, July 5.—All gasoline deliveries on highways within a radius of 50 miles of the refinery are made by the Continental Oil Co. (formerly Marland Refining Co.) with the tank truck and two trailers shown in the accompanying picture.

The truck tank has a capacity of 1000 gallons and the trailers each will carry 2500 gallons, giving the unit a combined capacity of 6000 gallons. Towns to which regular deliveries are made include Marland, Tonkawa, Blackwell, Braman, Caldwell, Wellington, Winfield, Arkansas City, Newkirk, and within a short time Perry.

The truck is equipped with a pump which will discharge a full load in 40 minutes. The unit makes one short and one long haul each day.

Martin & Schwartz, Inc., Buys Doty Mfg. Co.

CLEVELAND, July 6.—Martin & Schwartz, Inc., Buffalo, N. Y., manufacturer of gasoline pumps and other marketing equipment, and the Doty Mfg. Co., St. Louis, manufacturer of lubricating equipment, have consolidated. The Martin & Schwartz name and executive personnel are retained.

The consolidated company will have complete stocks in warehouses in St. Louis, San Francisco, where an assembly plant is maintained, Detroit, Pittsburgh, and Buffalo. Men in charge of branches are: George J. Neumayer, St. Louis, formerly manager of plants and sales for Doty; Frank L. Kimball, San Francisco; Barney Thomas, Pittsburgh, and L. W. Brummitt, Detroit.

Trademark Suit Settled

CLEVELAND, July 6.—The trademark infringement suit brought by The Pennzoil Co. against the Commonwealth Oil Co. in the U. S. District Court here has been settled out of court. The Commonwealth has agreed to change the name of its Pennsylvania oil from Pennoyle to Comoco. It will not handle Pennzoil in the future.

At Port of New Orleans

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Forty Million Gallons Capacity

WORLD'S LARGEST PUBLIC TERMINAL

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Facilities for handling anything that flows through a pipe-line, without contamination. Our own wharfage and trackage for 750 cars. No wharfage or switching charges. In-transit rate applies. Minimum evaporation and low insurance cost. Reliable custodianship. "You buy and sell it, we do the rest."

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TANK STORAGE & TERMINAL CO., Inc.

NEW ORLEANS, U. S. A.

A SUBSIDIARY OF
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Expert Filtration Service

More and more is filtration coming to be the "key" step in refinery practice.

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Gotkool

GOTT Water Cans 1½ gal; 3 gal; 5 gal; and 10 gal.

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H. P. GOTT MFG. CO. · Winfield, Kansas

KEEP PURE DRINKING WATER ALWAYS HANDY

Selecting Station Lots Like Cigar Store

"Stop and Gas with Us," is the back door inscription on all Huxford Oil Co. trucks and at all service stations

MOBILE, Ala.

FIVE years and more have passed away since supposedly wise heads in the oil industry began to wag their beards and say, "The day of the Independent oil jobber has gone." And in those five years the Huxford Oil Co. of Mobile, Ala., has grown from practically nothing to the leader of the field there.

Five years ago the company's equipment consisted of two second-hand tanks, salvaged from tank cars, and four little home made lube oil tanks, fashioned out of corrugated, metal roofing, besides a few pieces of rolling stock that were relics. Even then there was plenty of competition in Mobile, major companies and Independents as well.

Now the company admittedly sells more gasoline than any other company doing business in the town, and moves most of it through five service stations that are owned and operated by salaried sales help, and three good dealer outlets. E. B. Eberline, general manager of the company says the growth has been due to special attention to service stations.

About six years ago, the company was acquired (more by accident than otherwise) by interests that operated extensively in turpentine. The management had no intimate acquaintance with the oil business, and when they selected their general manager about a year later they picked Mr. Eberline, previously identified with the tobacco industry.

"The company had no service stations when I started," Mr. Eberline relates. "Part of my first year's work was to select locations and build service stations. The only knowledge I had to qualify me for that task was some experience in selecting locations for cigar stores. I knew how that was done and followed the same system in picking filling station sites.

"There was no lack of money with which to buy the right locations, but of course that was no excuse for being extravagant and buying too many. All we wanted was enough locations to serve the motorists of Mobile conveniently. I do not know how nearly right we were, but here is how we went about it:

"First, we selected a dozen or so available locations for service stations which, superficially, seemed to be good sites. Then I took my own car and tried to approach each one from as many directions as possible. This was to see, from actual customer experience, if they were as conveniently situated as they seemed to be. By this method alone we eliminated some of our early selections.

"The next process was more expensive. We put men on the proposed filling station corners with counting machines. They counted the traffic carefully. We 'clicked' the traffic on both sides of both streets separately, week days and Sundays. From these figures we deliberated still further as to what were the most desirable locations.

"Corners on streets with a good flow of traffic, evenly distributed over the day, we considered most desirable. These data finally determined which five of the locations under consideration would be bought. Of course care was taken not to have any two stations too close together, where there would be competition between them.

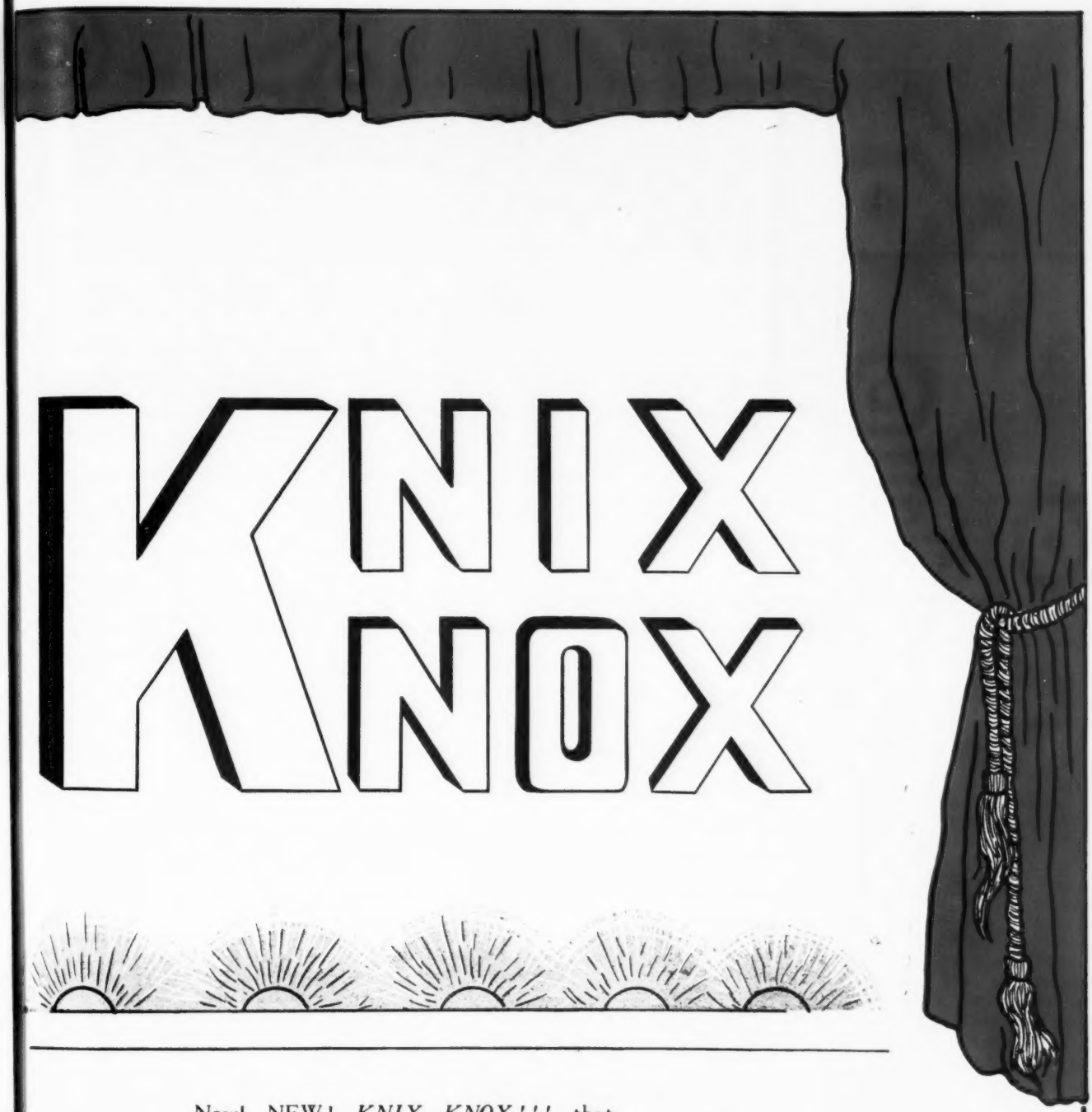
"All of the stations were not built at once but all the lots were selected in about the same way. We were working on the theory that one car out of every 20 that passes a convenient service station will come in. We were certainly not satisfied with that however. We believe two cars out of every 20 will come into a convenient station if the station is managed right."

By the term "managed right," Mr. Eberline elaborated to mean keeping stations clean, making them attractive, putting them in charge of likable young men who are naturally cheerful and give customers service in a hurry.

It was one of these cheerful young men at a service station who developed the company's slogan that now appears on a sign over each service station and on the back of every tank truck. The slogan is, "Stop and Gas with Us."

TORONTO, July 5.—The Sinclair Refining Co. of Canada, Ltd., recently opened offices here at Bay and Richmond streets to market Sinclair products throughout Canada, according to C. A. Ham, a member of the company.

STEEL
DRUM ACCESSORIES
CORPORATION
BUFFALO, NEW YORK
"The House of Drum Faucets"



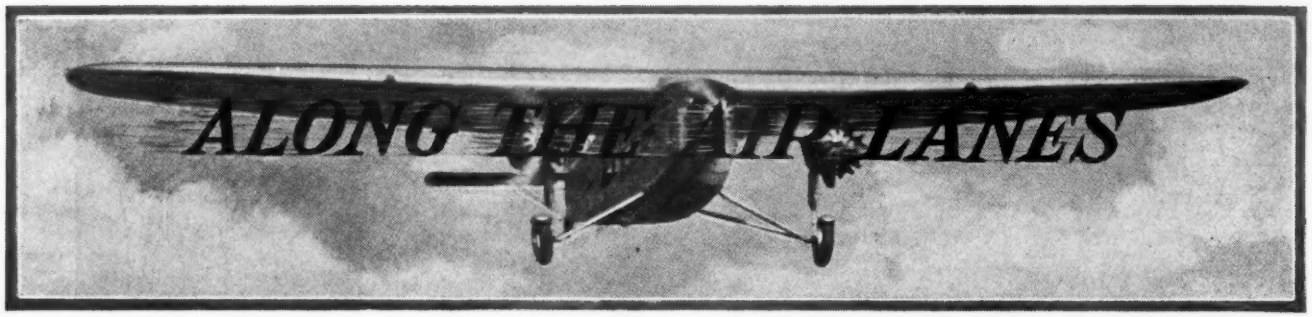
Now! NEW! *KNIX KNOX!!!* that POWER-*ful* red anti-knock gasoline. There are no knocks in it, and after strenuous tests, there are no knocks about it. Held off the market for months until perfected.

KNIX KNOX just NATURALLY won't knock — it's made from *Smackover Crude* — nothing added — much subtracted!

Not a Knock In a Train Load!

LION·OIL·REFINING·COMPANY

General Office and Refinery, El Dorado, Arkansas



Capt. Frank M. Hawks, superintendent of the aviation division of The Texas Co. brought his Lockheed-Vega plane "Texaco V" to rest at Roosevelt field, Long Island, early on the morning of June 29, after a record-breaking round trip to Los Angeles.

Capt. Hawks shattered his own record for the coast-to-coast eastward flight with a new mark of 17 hours 30 minutes 3 seconds. He likewise broke the previous coast-to-coast westward record, established by the late Capt. C. B. D. Collyer and Harry Tucker, his elapsed time of 19 hours 21 minutes 32 seconds bettering the previous mark by more than five hours. A record for the round trip flight from coast-to-coast was made for the first time by Hawks.

The flier, taking off from New York about daybreak on June 27, was sighted only periodically on his westward jaunt. Taking aboard 525 gallons of gasoline and 25 gallons of oil, he announced his intention to fly high on his return trip. Later, he was sighted over Albuquerque, N. M., and at East St. Louis, Ill., he swooped within 50 feet of the field to read the weather charts and to drop a note stating that he was bucking a strong wind. Only fragmentary reports of the progress of the aviator, who otherwise maintained a high altitude, were received until the plane descended at Roosevelt field.

Hawks, who is 32, received his aviation training in the Army. Following service as an instructor and as an air mail pilot, he became associated with The Texas Co. Last year, flying a tri-motored Ford plane, he won honors in the National Air Tour, and cruised more than 50,000 miles all over the country, during which time he took up 7200 persons as guests of the company. On Feb. 5, he broke all records in his flight from Los Angeles to Roosevelt field, in the same plane with which his recent round-trip flight was made.

* * *

Richfield Oil Co., Los Angeles, is installing equipment to deliver gasoline and oil for the Western Air Express from Los Angeles to Kansas City, Mo.; for the Transcontinental Air Transport, Inc., from Los Angeles to Clovis, N. M.; Standard Air Lines from Los Angeles to El Paso; and Maddox Air Lines, Los Angeles, to San Francisco, among others.

Rufus J. Pilcher, assistant manager of the aviation department, managed the two-day dedication air races at Santa Rosa airport on May 18 and 19; and also managed the opening of the Desert Center airport at Desert Center, Calif. Mr. Pilcher was chief of operations of the National Air Races in 1928.

George E. Irvin, service engineer in the department, has lectured and shown films on aviation to some 100,000 people in the past five months.

* * *

A 6000-mile air tour of Europe was completed recently by Major E. E. Aldrin, manager of the aviation division of the Standard Oil Co. of New Jersey, in the company's Lockheed-Vega Wasp plane. The trip was to promote the sales of aviation petroleum products in Europe.

When Major Aldrin left the United States, his plane was fastened to the top deck of the ship, uncrated as baggage. Major Aldrin is probably the first trans-Atlantic passenger to take a plane across the ocean with him listed as baggage.

The tour approximately 50 hours flying time and started at LeHavre, France. Eight countries visited were England, Holland, France, Switzerland, Germany, Italy, Czechoslovakia and Austria.

Accompanying Major Aldrin were Mrs. Aldrin and William Wilkerson, mechanic.

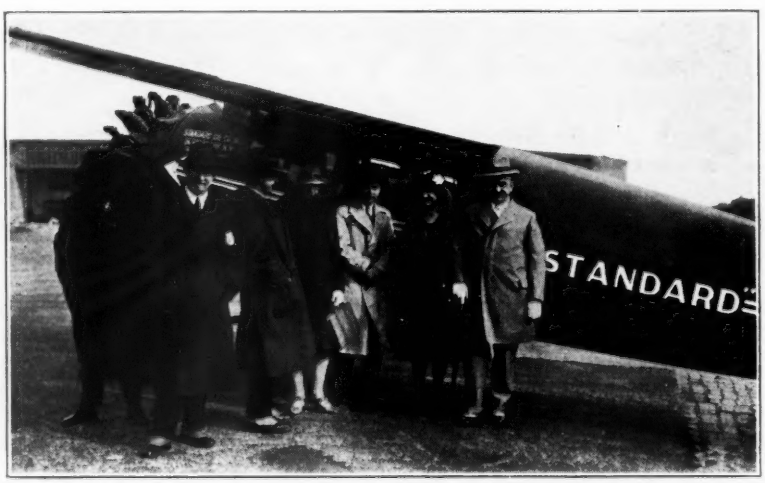
One of the miracles of present-day travel was performed recently when an airplane took Judge E. D. Reiter, general counsel for the Miley Oil Co., producer, Los Angeles, to two different states outside of California within two days to witness the graduation of two of his sons from universities in these states.

Judge Reiter traveled approximately 1200 miles by air, to attend the graduation exercises at Oregon University, Eugene, Ore., and at Washington State College, at Pullman, Wash., and arrived back in Los Angeles on time to act as chairman of the Kettleman Hills crude proration committee.

Judge Reiter, since passing the 50-year mark, has taken up aviation seriously and is now owner of a Waco "Hisso" 180 model plane and of pilot license No. 56759. He uses his plane whenever possible in his business and much prefers it to other means of transportation. He commented on the good service furnished by the Standard Oil Co. of California at all fields which he touched on his trip to Oregon and Washington, saying that a Standard truck was always on hand to supply gasoline, oil and water for airplanes.

* * *

A Fokker tri-motored monoplane was used recently in transporting the millionth refrigeration unit produced by the Frigidaire Corp., subsidiary of General Motors Corp., to Atlantic City for display at the National Electric Light Association convention there.



Left to right: H. Breme, director of Deutsche Amerikanische Petroleum Gesellschaft, German subsidiary at Hamburg of the Standard Oil Co. of New Jersey; Mr. Bartels, Capt. Rhode, Mrs. Breme, Major E. E. Aldrin, Mrs. Aldrin and Mr. Busche

Type of service station with enclosed lubrication and car washing facilities being built by the Texas Co. Three of them recent ly were built in Lima, O.

How The Texas Co. Develops Its New Sales Territory Scientifically

CLEVELAND

SCIENTIFIC surveys of buying power and market possibilities are made by The Texas Co. before it enters any city with its own distribution. These surveys estimate the buying power of neighborhoods, indicate the best locations for stations, and provide the facts used in sales planning.

The principle involved, as stated by S. B. Wright in an article entitled, "Developing New Sales Territory," in a recent issue of the *Texaco Star*, is that "successful sales, with satisfactory unit cost, in a new territory, depend upon the seller providing proper facilities for serving the retailer and establishing merchandising outlets located to serve conveniently all the public, yet without duplication of facilities in any one community."

The survey is necessary so that the seller may act intelligently.

A typical Texas Co. method of surveying a market was used last winter when the company entered Lima, O., with wholesale and retail distribution. A convenient site that complied with zoning law and fire ordinance restrictions, was selected for a bulk station and the survey indicated that seven service stations would be needed to serve the city's car owners and the transient trade.

Although the company has no definite policy one-stop service stations, it does build stations at which cars are lubricated and washed. This type of station is called a super-service station by the company. At Lima it was decided to build three of these stations with enclosed washing and lubricating facilities. There is space at these three stations for parking cars, so owners may leave them at the station while they attend to other business. At each of the other four stations there is an outdoor lift to facilitate crankcase oil changing and greasing. Some super-stations are operated in California, Colorado, Oklahoma and the south.

Just how the company operates was explained by Mr. Wright who wrote:

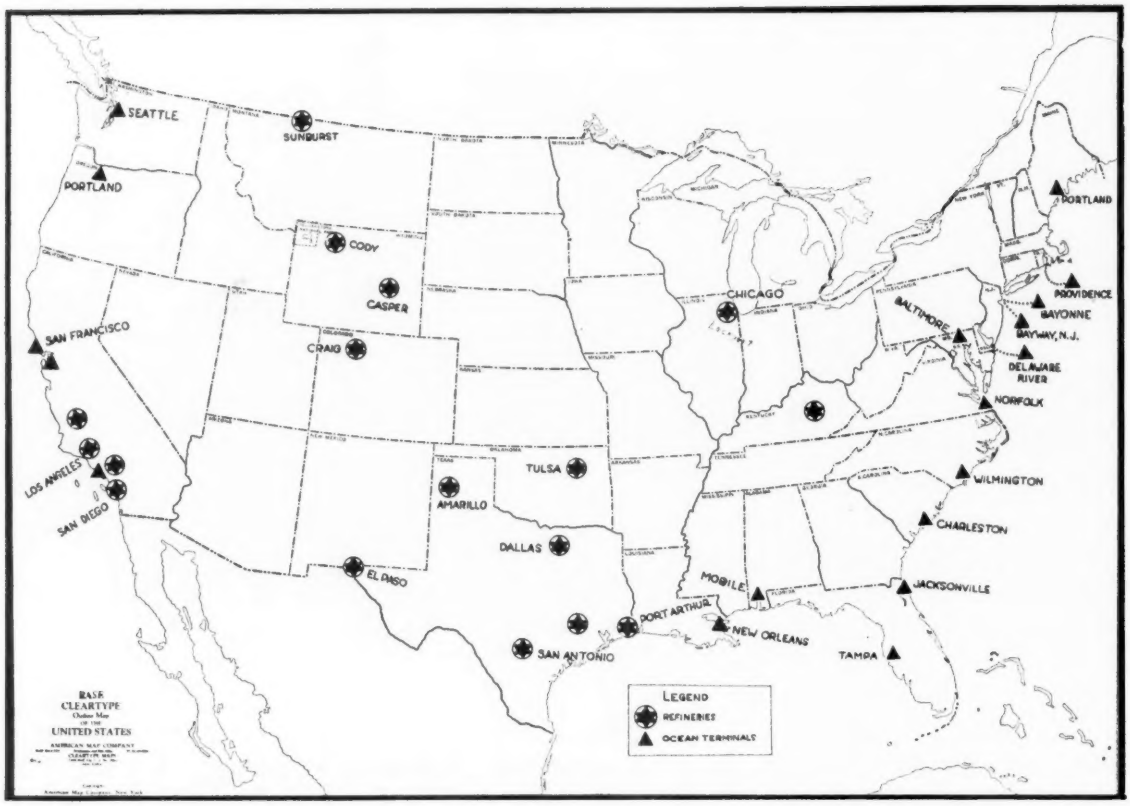
"Immediately after the purchase of the bulk station site and before any solicitation was allowed, a survey of the city was made for the establishing of retail outlets. Too often lack of sales planning will lead to duplication of facilities; then follows high operating expense per unit.

"It was necessary to locate sufficient sites for service stations to serve properly the best communities within the city and the tourists traveling the highways. Sites, as in the case of the bulk station, were restricted to certain areas by zoning laws and the necessity of securing signatures of adjoining property owners.

"The potential business available for a service station must be measured by the purchasing power in a given area. Too often service stations are erected on locations because the property is cheap or permits are easily obtainable. A station erected in a scattered manufacturing district has little chance of success; a station erected in a thinly-populated section of a city, or in a section where only a few cars are owned in each block, seldom succeeds. When stations are erected in such districts, they must be spaced a greater distance apart, for always sufficient purchasing power must be available for the support of the station. In the larger cities, sections where the better class of apartment houses are located are usually excellent locations for a service station.

"IN DECIDING to locate a station in a given community, it is, of course, desirable to have the station on a state highway if possible and yet serve the neighborhood. Experience teaches that customers prefer not to cross business sections or congested streets to patronize a certain station; also, they make their purchases either in the neighborhood or in driving to or from the business section, and seldom will they drive to the outskirts of the city to make their purchases.

"After making a survey of Lima, it was decided that seven service stations would be necessary to serve the city, and that any additional investments in such outlets was unwar-



Courtesy of the Wall Street Journal

Map showing location of refineries and ocean terminals from which the Texas Co. distributes gasoline and oil to every state in the Union. The company has a more wide-spread distribution in the United States than any other corporation

ranted. Six of the stations are located on state or national highways, and, in addition, all are located in areas containing the highest purchasing power.

"Another reason to support the final selection of the seven sites is that out of 52 service stations now operating in the town, only 17 are located in the area classified as the better residential section and main business district.

"The seven service stations will be equipped with air lifts to enable the operators to drain properly crankcases and grease cars. In addition, in order to give the public the highest type of service, it was thought desirable to provide double-enclosed greasing and washing facilities at three of the stations so that, regardless of weather conditions, customers could be served, have their crankcases drained, and their cars greased and washed at their convenience. Larger plots of ground were secured for the three super-stations so the customer could park and leave his car for service if he so desired.

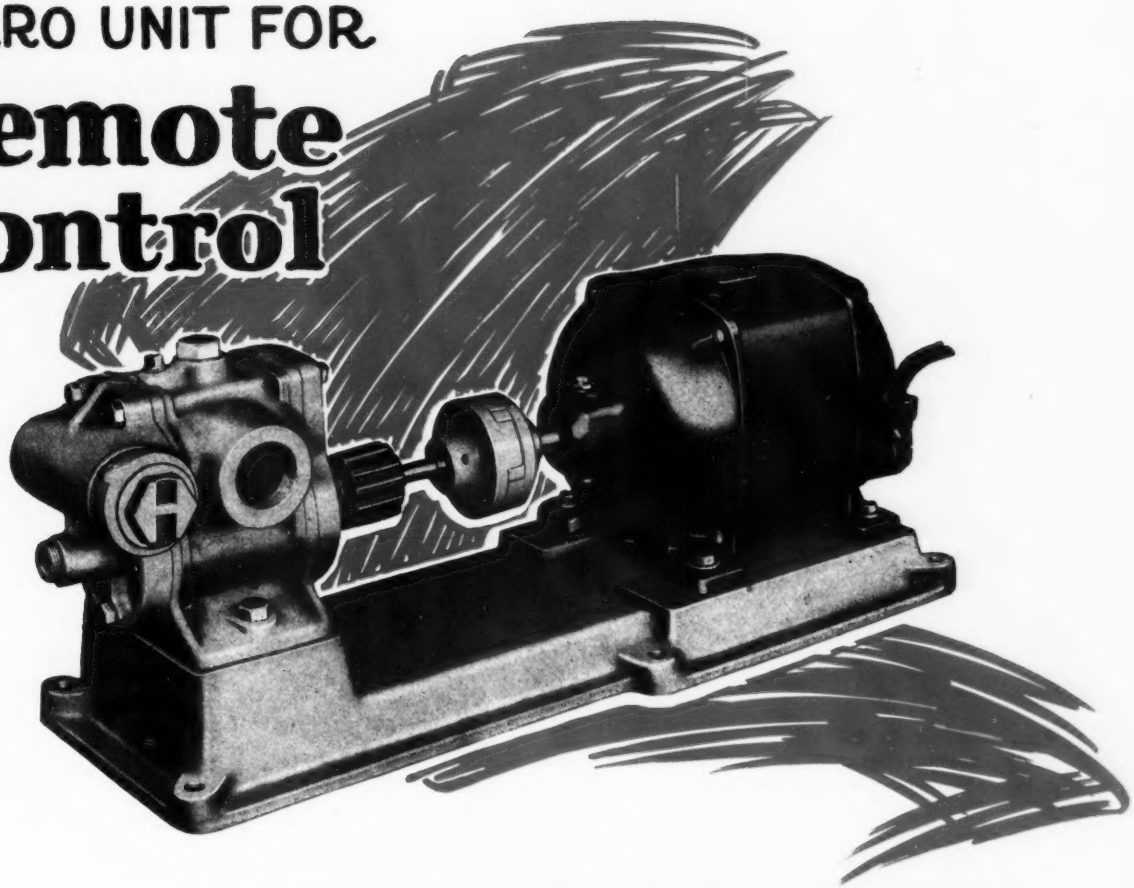
"Of the seven stations, the first site was selected for the super-type station because of its being located in a high-class residential section and the fact that the stations now operating in the good section west of this location do not provide enclosed service. A second location was chosen because of its situation in the business section, thereby enabling the business man to leave his car to be greased and washed during business hours.

"This site is not more than two blocks from the court house and the same distance from the city's largest hotel and largest theater. A third station was designed to accommodate the people living east of the river who thereby could secure complete service without having to enter the congested area; this appeals particularly to women drivers. All three super-service stations are equipped with modern devices for giving serv-

New bulk plant of The Texas Co. at Lima, O. Pump house is at left. Loading racks are at platform along warehouse in center. The office is at right

A FERRO UNIT FOR

Remote Control



To the Manufacturers of Gasoline Dispensing Equipment

THIS pump will enable you to meet all conditions of Remote Control installations. Pumping unit is identical in design, construction and material with our cabinet types. Has a capacity of 25 gallons per minute and can be used with two or three outlets. Mounted on heavy cast iron base with coupling for direct connected motor. Base and coupling furnished to fit any desired make and size of motor necessary to meet installation conditions.

Write us today for an illustrated folder with complete description of the Ferro Remote Control Pump.

The Ferro Machine & Foundry Co

CLEVELAND O

U S A

Type of service station being built by The Texas Co. with outdoor lift. Four of these stations were built last spring in Lima, O.

ice, including high pressure grease guns and high pressure washing systems.

"After determining the sites for service stations, the next step in sales planning is to decide upon the areas in which to solicit established retail outlets; in this class is included storage garages and parking spaces in the main business section that service a certain clientele not reached through the service stations.

"Then comes the curb pump, accessories store, and the small drive-in station operated in connection with some other established business. These classes of outlets should be solicited only in sections that are outside of the area assigned to the service stations.

"After the areas are selected for the solicitation of retailers, success in securing the desired outlets then depends upon the popularity and quality of the products, plus the selling ability of the organization. In entering a new sales territory, the public acceptance of branded grades of petroleum products will be much more rapid in a large city if retail outlets to serve all sections of the city are established at once.

"The planning of sales distribution is an interesting study in developing a new territory. It is necessary to avoid overlapping outlets that cannot be other than costly. Only by a close study of the purchasing power in a given area can the investment for service stations be justified, and, lastly, the confidence gained by the personnel in doing a job well is worth much to an organization.

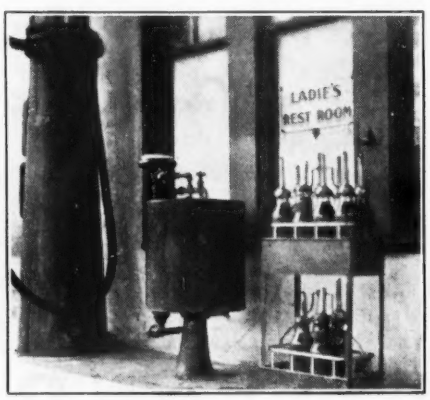
"Sales planning in a new territory will enable the organization to make a sales forecast for the immediate future, and only by an accurate forecast can the management supply the proper equipment, authorize the correct number of employes, and otherwise limit the expense so that the marketing cost will be held to a satisfactory figure. The problem, summarily, is a complex one, but modern methods solve it readily."

Oil Jobber Builds Trade On Cold Ginger Ale

TUPELO, Miss.—"Ginger Ale and Gasoline" was the catch-phrase of an advertisement that appeared recently on posters at service stations of the Independent Oil Co. here, of which R. C. Clark is president. There was no "bunk" in the advertisement however. Mr. Clark's stations sell considerable quantities of ginger ale and other soft drinks.

The drinks are kept in a heavy, metal icebox (not inside the station office as they usually are carried at garages) but out on the station drive, under the canopy. They are as close to the gasoline pumps as they can be placed, not to be in the way of men serving the gasoline trade.

Drinks were not stocked at the company's filling station as a line of business from which to derive additional revenue. The "refreshment department" is made to pay its own way but the primary reason for retailing soft drinks was to attract more trade into the stations. Mr. Clark says it has had that effect and in some cases has shown a respectable profit.



Combination drinking fountain and ice box for cold, bottled drinks on service station drive.

Nobody suspected at the time the stations started selling drinks that giner ale would be the leader, but it is. Half the bottled drink sold is ginger ale; 40 per cent is Coca-Cola and the rest assorted pop. The cold drink departments of the company owned stations net back about $10 a month per station, on the average. A particular station, on one occasion, earned $50 in a month but that was extraordinary.

The gross spread in bottled drinks is approximately 35 per cent to the retail dealer. Some drinks pay 30 and some 40 per cent. Many of the sweeter beverages are consumed by gasoline customers as they sit in their cars being served. An accompanying cut shows a typical cold drink installation in front of a filling station.

TULSA, July 6.—Returns from manufacturing firms representing 95 per cent of the industry show that 3,496 airplane engines, valued at $16,809,164 were produced in the United States last year, according to the aeronautics branch of the Department of Commerce. In addition to these, 700 engines valued at $426,869 were rebuilt during the year. This was published in a recent bulletin of the Western Petroleum Refiners Association.

New Stations Building

Bay City, Mich.—John DeYoung, filling station.
Fredericksburg, Ind.—Harvey Hunter, service station.
Belvidere, Ill.—Shell Petroleum Corp., service station.
Washington, D. C.—Gulf Refining Co., 2 filling stations.
Atlanta, Ga.—Spur Distributing Co., 3 filling stations.
Tampa, Fla.—Seals Bros., filling station.
Charlotte, N. C.—Standard Oil Co., filling station.
Winston-Salem, N. C.—The Friends Church, filling station.
Belmont, Mass.—Standard Oil Co. of New York, bulk and filling stations.
Nashville, Tenn.—T. J. Haile, Jr., filling station.
Wilmington, N. C.—Gulf Refining Co., filling station.
Charleston, S. C.—The Texas Co., 2 filling stations.
Keene, N. H.—Granite State Flying School, Inc., filling station.
Charleston, W. Va.—Standard Oil Co., filling station.
Trenton, Mo.—Cooperative Oil Co., bulk station.
Braintree, Mass.—Cities Service Oil Co., filling station.
Lexington, Mass.—Master Service Stations, bulk station.
Sommerville, Tex.—C. C. Bee, filling station.
Augusta, Kan.—White Eagle Oil & Refining Co., Kansas City, Mo., filling station.
Larned, Kan.—Phillips Petroleum Corp. filling station.
Longmont, Col.—Sig's Service Station, filling station.
Tecumseh, Neb.—Elmer Lintz, filling station.
Jefferson City, Mo.—Shell Petroleum Corp., filling station.
Grand Forks, N. D.—Automobile Dealers Oil Co., service station.
Holton, Kan.—Charles B. Ellis, service station.
Pryor, Okla.—Grove Motor Co., filling station.
El Paso, Tex.—Spears & Miller, 3 service stations.
Steamboat Springs, Col.—D. H. Coyner, filling station.
St. Joseph, Mo.—Shell Petroleum Corp., filling station.
Salem, Ia.—The Sunshine Oil Co., service station.
Chardon, Neb.—Continental Oil Co., filling station.
Abilene, Tex.—Humble Oil & Refining Co., filling station.
Atwater, Minn.—Standard Oil Co., service station.
Springfield, Mo.—Shell Petroleum Corp., 2 filling stations.
Shreve, O.—Arrow Oil Co., service station.
Crestline, O.—E. F. Weller, filling station.
Bucyrus, O.—Shell Petroleum Corp., filling station.
Garrett, Ind.—Guy W. Roser, filling station.
Chagrin Falls, O.—Sinclair Refining Co., bulk station.
Tecumseh, Mich.—J. C. Friedel, filling station.
South Bend, Ind.—H. J. Schrader Co., Kokomo, Ind., service station.
Laurium, Mich.—Sinclair Refining Co., filling station.
Newton, Ill.—Standard Oil Co. of Indiana, service station.
Veedersburg, Ind.—Shell Petroleum Corp., filling station.
Lewiston, Ill.—Standard Oil Co., filling station.
Elmhurst, Ill.—Standard Oil Co., greasing station.
Lerna, Ill.—Geo. W. Funkhouser, filling station.
Lima, Ill.—David Hardy, filling station.
Clay City, Ind.—Sherman McQuinn, filling station.
Albuquerque, N. M.—The Texas Co., filling and bulk station for airplanes.
Royal, Neb.—H. Beal, filling station.
Grand Forks, N. D.—Neff Tire Co., filling station.
La Junta, Col.—J. G. Boner, filling station.
Iola, Kan.—Cities Service Oil Co., Service station.
West Union, O.—C. R. Holmes and Geo. Shuster, filling station.
Estherville, Ia.—Shell Petroleum Corp., service station.
Washington C. H., O.—Refiners Oil Co., filling station.
Orrville, O.—C. P. Miller, filling station.

Even a ROBOT Can Make a Sale But

It Takes a WIZARD to Make Customers

When supervised by experts, with complicated controls, even a ROBOT, the modern day mechanical man, can make a sale—or at least go through the motions of making a sale just as a stunt. But it takes a WIZARD to make customers!

For there's a big difference between making an occasional sale and making customers. This difference can only be bridged by service and equipment that creates CONFIDENCE.

That difference is the difference between WIZARD OIL UNITS and ordinary equipment.

WIZARD UNITS are merchandisers as well as dispensers. They have sales IT. Their efficient appearance, beauty of finish and on-the-job appeal make motorists say "better check my oil, too!"

And that's the kind of CONFIDENCE that creates CUSTOMERS.

Your asking will bring you profit facts and figures.

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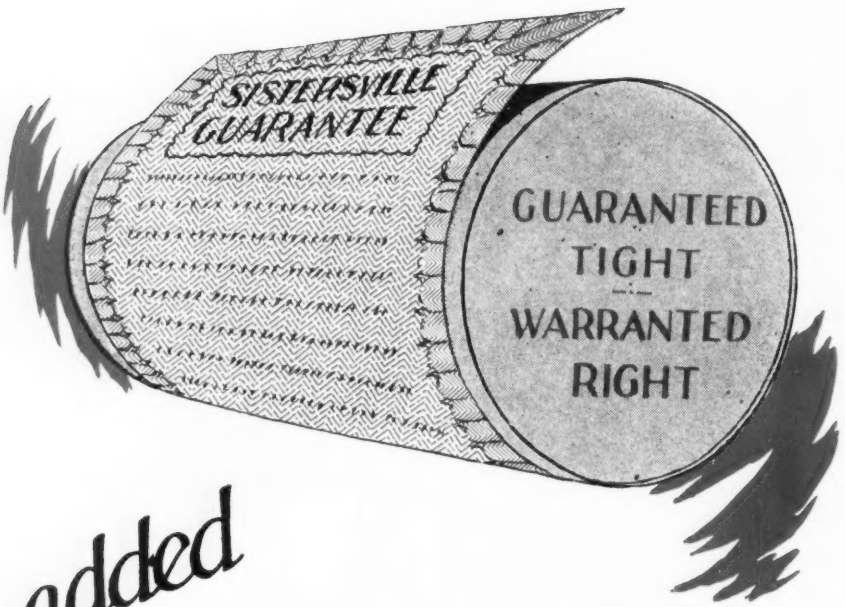
Cables - Rymer - New York
Codes - A-B-C-5th Ed. Bentley's

HIGH GRADE PETROLEUM PRODUCTS

Made by the Oldest Pennsylvania Oil Refiners

CYLINDER STOCKS, (Filtered and Unfiltered).
MOTOR OILS—to match any specification.
High Grade Burning Oils.
300° Mineral Seal and Railroad Oils.
High Grade Transformer Oils.

A. D. MILLER SONS' COMPANY
PITTSBURGH, PA.



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EACH Sistersville Tank that leaves our factory is bound by a guarantee that is added assurance of perfect satisfaction. We do not make any empty promises. We do not resort to the old bromides found in so many warrantys. We state, "Sistersville Tanks are absolutely guaranteed to be tight. We will replace any tank found defective because of materials or workmanship".

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SISTERSVILLE TANK AND BOILER WORKS

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give precise measurements of

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GRANBERG METERS installed on TANK TRUCKS provide a simple and accurate method of truck accounting by maintaining a continuous mechanical record of deliveries.

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Send for our literature.

GRANBERG METER CORPORATION

"Precision Meters for Petroleum Oils."

79 New Montgomery St. **San Francisco, Calif.**

Frederick, Okla.—Phillips Petroleum Co., filling station.

Ft. Worth, Tex.—Texas Pacific Coal & Oil Co., 2 filling stations.

Ash Flat, Ark.—P. E. Hinson, filling station.

Pine Bluff, Ark.—Standard Oil Co., service station.

Hutchinson, Kan.—Sam Schneider Oil Co., filling station.

Three Forks, Mont.—Avery Garage Co., service station.

Okmulgee, Okla.—Mid-Continent Petroleum Corp., Tulsa, service station.

Eaton, O.—Indian Refining Co., Lawrenceville, Ill., filling and bulk stations.

Delphos, O.—The Texas Co., filling station.

Newark, O.—Shell Petroleum Co. of Delaware, filling station.

Wooster, O.—Shell Petroleum Co., bulk station.

Portsmouth, O.—River City Oil Co., filling station.

Marietta, O.—Refiners Oil Co., 2 filling stations.

Snyder, Tex.—Stimson Camp Grounds, filling station.

Circleville, O.—Sinclair Oil Co., bulk station.

Wille Point, Tex.—W. R. Howell, filling station.

Humboldt, Ia.—Phil Wilson and L. P. Behaunek, service station.

Churchs Ferry, N. D.—Lake Oil Co., service station.

El Paso, Tex.—Mrs. Neil Shearman, service station.

Dallas, Tex.—Humble Oil & Refining Co., filling station.

Hillsboro, Tex.—White Eagle Oil & Refining Co., bulk station.

Sibley, Ia.—R. L. Dodson, filling station.

Forest City, Ia.—Sinclair Refining Co., service station.

Monett, Mo.—Ed Salzer, service station.

Lakin, Kan.—Harry Adkins, filling station.

Corpus Christi, Tex.—Transcontinental Oil Co., bulk station.

Hooker, Okla.—J. E. Smith, service station.

Grove, Okla.—O. F. Legg, filling station.

Little Rock, Ark.—C. M. Sandlin, filling station.

Little Rock, Ark.—Mrs. A. E. Townsend, filling station.

Ericson, Neb.—E. H. Hoefner, filling station.

Wichita Falls, Tex.—Orient Petroleum Co., filling station.

Salem, Ind.—Lewis Jones, filling station.

Hammond, Ind.—General Service Co., substation.

Estherville, Ia.—The Deep Rock Oil Co., filling station.

Eagle Grove, Ia.—Mid-Continent Petroleum Corp., service station.

Pequot, Minn.—B. O. Hoff, service station.

Minneapolis, Minn.—E. M. Kay, filling station.

Worthington, Ind.—Reid Stahl, service station.

Mayville, N. D.—Home Oil Co., service station.

Murphysboro, Ill.—Mid-Continent Petroleum Corp., service station.

Amasa, Mich.—Standard Oil Co., filling station.

Crystal Falls, Mich.—Charles Lahde, filling station.

Georgetown, Ill.—Shell Petroleum Corp., St. Louis, Mo., filling station.

Omaha, Neb.—National Refining Co., service station.

Fairmont, Minn.—Fairmont Oil Co., filling and bulk stations.

Palmer, Mass.—Gulf Refining Co., filling station.

Ware, Mass.—Standard Oil Co., filling station.

Aitkin, Minn.—Standard Oil Co., filling station.

Prescott, Minn.—E. B. Carisch, filling station.

Chamberlain, S. D.—White Eagle Oil & Refining Co., filling station.

Prophetstown, Ill.—Illinois Oil Co., service station.

Croswell, Mich.—Dave Quail, filling station.

Pana, Ill.—Hugh Lewis, filling station.

Kokomo, Ind.—Hanks Tire Service Station, service station.

Dresden, Tenn.—Woodford Parks, filling station.

Rochester, Ind.—Polk Oil Co., filling station.

Blue Island, Ill.—Public Service Co., substation.

Moweaqua, Ill.—Standard Oil Co., filling station.

Manaroneck, N. Y.—Morris Shongut and John Sommers, filling station.

Youngstown, O.—Pennzoil Co., filling station.

Escanaba, Mich.—Escanaba Oil Co., filling station.

Aircraft Exhibit to Feature Tulsa Petroleum Expo

CLEVELAND

PLANS are under way for a very elaborate exhibit of airplanes as one of the features of the International Petroleum Exposition to be held in Tulsa Oct. 5 to 12, according to a statement of William B. Way, general manager.

The following executive committee has been named: Frank Hinderliter, Hinderliter Tool Co.; Alf G. Heggem, president Oil Well Improvements Co.; J. Burr Gibbons, vice president Oil Well Improvements Co.; A. W. Leonard, Devonian Oil Co.; D. D. Wertzberger, D. D. Wertzberger Co. Buildings and grounds committee is as follows: A. F. Bourne, Oklahoma Iron Works; W. M. Bovaird, Clyde Pape of the Selby Oil & Gas Co. and D. F. McMahon.

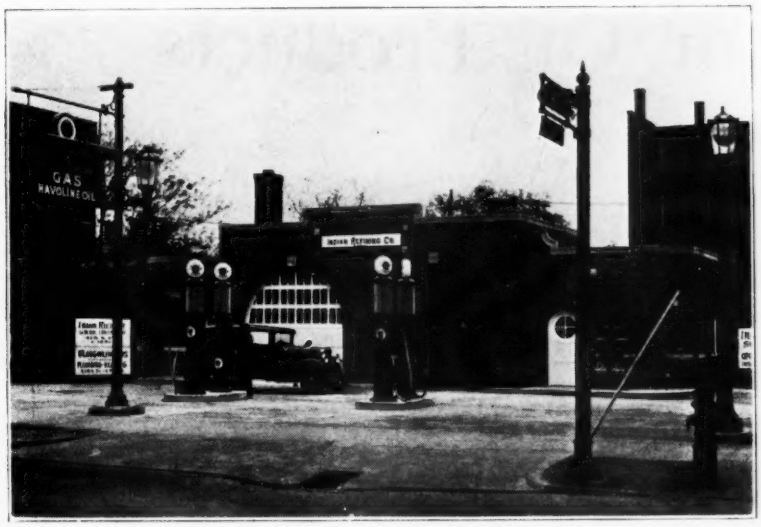
It is stated that 177 contracts for space already have been received and demand for inside booths already exceeds the supply.

As a feature of the scientific exhibits Mr. Way says he has written for a new model of an air lift installation and a model of a pumping well made by employees of the Manufacturers' Heat & Light Co., in Pittsburgh.

As a feature of interest to members of the marketing branch of the industry, efforts are being made to secure a meeting of the Four States Jobbers Association composed of jobbers from Iowa, Kansas, Nebraska and Missouri, and also a meeting of the Oklahoma and Texas jobbers, during the course of the exposition.

The American Petroleum Institute and the American Institute of Mining and Metallurgical Engineers will meet three days before the exposition and also the Mid-Continent section of the National Safety Council. It is hoped also to get a meeting of the American Welders Society and invitations have been sent to more than 100 petroleum associations inviting them to meet at Tulsa during the exposition.

Public Inspection Marks Station Opening



The new super station of the Indian Refining Co. at Terre Haute, Indiana

A PUBLIC reception and inspection was used to open a super service station of the Indian Refining Co. at Terre Haute, Ind., last month. From 8 p.m. until midnight the public inspected the station, and at midnight 24 hour service was started.

Station attendants explained the use of the equipment and the service to the public. Clerks from the Indian's district office gave roses to the ladies. High officials of the company were on hand to greet the people.

J. T. Reed, district manager for Indian, turned on the lights at 8 o'clock. The station doors rose, revealing an orchestra on the lift.

Advertisements consisted of full page newspaper space inviting the public to the opening. There was a full page advertisement of pictures of the station, of attendants, and of local prominent personages patronizing the station.

Original "GREASE-PAK"

TRADE MARK REG. U.S. PAT. OFFICE

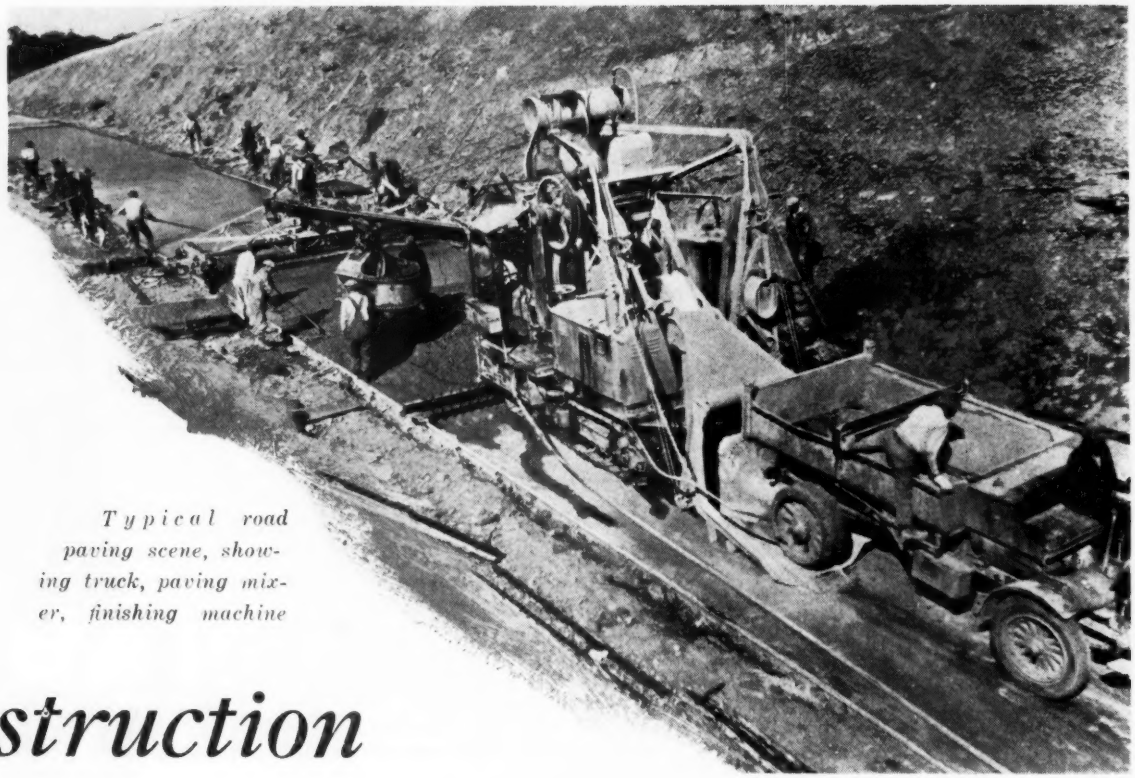
Model 25, the most convenient truly portable 25 lb. capacity greasing outfit obtainable. Pumps ½ lb. grease per stroke. Has durable heavy malleable cast base, strong steel shell 16-gauge top—all seams flanged upward for waterproofness. Metal sleeves protect hose connections against breakage—hose 4½' of ¾" flexible metal with cast nozzle.

Write for
"GREASE-PAK" *Bulletins*
To Muskegon.

BENNETT PUMPS CORP., Muskegon, Mich.
SERVICE STATION EQUIPMENT CO., Ltd., Toronto and Winnipeg
REPUBLIC STEEL PACKAGE CO. OF CALIF., Richmond, Calif.
BENNETT EXPORT CORP., 32 Broadway, New York

~Symbol of Quality~

Bennett Pumps Corporation
QUALITY BUILT
BENNETT
Dispensing Equipment
FOR OIL MARKETERS
Muskegon, Michigan.



Typical road paving scene, showing truck, paving mixer, finishing machine

Construction

Industry Is Furnishing Growing Market for Oil Products

By E. Eaves*

GASOLINE engines are furnishing the power for most of today's mechanical equipment in the building contractor's plant—shovels, concrete mixers, trucks, pumps, compressors.

This construction plant, responsible in large measure for the engineering construction industry's growth to an annual volume of $3,550,000,000 now takes a bigger share of this total than does labor. Only a few years ago the average contractor's costs in order of their importance to him were (1) materials; (2) labor; (3) tools. Today this order is changed to—(1) materials; (2) equipment; (3) labor.

The gasoline engines operating much of this equipment require the purchase of gasoline, oil and grease.

The rise of the gasoline engine in the construction field has been spectacular both on account of the number of units of equipment and the ingenuity and variety of applications of power to tasks formerly performed by hand.

The hod carrier is extinct. The gasoline engine powered hoist operating a material elevator has helped supplant him and has helped increase building heights.

Excavating and earth moving are on a mass production basis because of many different types and models of gasoline powered equipment for digging, loading and transportation. Pumping, air compressing and concreting are gasoline engine powered on many jobs.

The gasoline engine, however, does not have a monopoly on the construction power market. Steam operated the first models of construction equipment and still has operating advantages and a place on construction work not yet supplanted by the more mobile and convenient gasoline power.

Electricity, too, claims its place. Its greatest use is on very large operations where power is available, or which are large enough to justify a generating plant, city building work and underground work where ventilation is a problem. As will be noted later the Diesel engine is also coming into this market. The majority of construction equipment now sold, however, is gasoline engine powered.

The types of power operated equipment used on construction work include:

Table I—Types of Construction Machinery Operation by Gasoline Power

Asphalt plants
Backfillers
Blowers, tunnel
Compressors, air
Conveyors, belt
Conveyors, bucket
Cranes, locomotive
Crushers, rock
Dragline excavators
Dredging equipment
Electric light plants
Fans, ventilating
Finishing machines
Generators, electric
Graders, road
Gravel plants
Hoists
Hydraulic machinery
Loaders, belt
Loaders, bucket
Locomotives, industrial
Logging machinery
Mixers, concrete
Pavement breakers

*Engineering News Record.

Power units
Pile drivers
Pumps, diaphragm
Pumps, centrifugal
Pumps, piston
Road rollers
Sandblast machines
Saw rigs
Screens
Shovels, power
Snow plows
Trench excavators
Welding equipment
Well drilling rigs
Winches
Wood-working machinery.

Gasoline consuming capacity of equipment is proportional to horsepower rating which is summarized by types of machines in Table II. (This is also represented graphically in the chart "Size Range Of Gasoline Engines Reported For Different Kinds Of Equipment.")

Table II—Size Range of Gasoline Engines for Construction Equipment

Kind of Machine	Horsepower of Gasoline Engines Largest	Smallest	Most used* (Average)
Cranes (Locomotive)	133	35	57
Shovels (Power)	150	30	56
Draglines	80	30	67
Mixers, Concrete	47	1½	2
Drills (Well)	25	4	16
Locomotives (Industrial)	130	29	48
Hoists	130	4	27
Pumps (Portable)	30	1¾	5
Compressors, Air	77	13	32
Concrete Finishers	8	6	8
Back Fillers	33	25	29
Trench Excavators	125	30	52
Conveyors and Loaders	37	4	19
Miscellaneous Crushers, Graders, Tractors, Saw Rigs, etc.	70	3	38

*Average figure obtained by adding "most used" sizes reported in each class and dividing by number of manufacturers reporting in each class.

Annual sales to the construction industry of 57,300 gasoline engines, representing approximately 1,000,000 horsepower, were estimated in 1926 by *Engineering News Record* from a survey of the number of units bought by manufacturers for powering their equipment. This is exclusive of about 250,000 trucks and several thousand tractors operating on or servicing construction jobs.

A rough "rule of thumb" estimate of gasoline consumption is reported by A. H. Hunter, engineer, Illinois Association of Highway and Municipal Contractors, to be one pint per horsepower per hour if equipment is worked to capacity.

Actually under working conditions, with idling and light loads this is probably reduced to one-half or two-thirds of this amount. Mr. Hunter reported fuel costs on concrete pavement which average $587.50 per mile or 5.5 cents per square yard. These figures were based on records of pavement costs in Illinois.

In 1927, out of approximately 116,000 miles of road built in the United States by state and local authorities, approximately 6200 miles were of concrete, and the balance of this highway construction used gasoline engine powered equipment of many types.

The Portland Cement Association in 1928 reported the yardage of concrete pavement laid during that year to be: roads, 93,577,760 square yards; streets, 50,808,214 square yards; alleys, 3,948,452 square yards. These figures indicate roughly the fuel and oil consuming capacity of only one department of the engineering construction market.

A paving "plant" is built around the paving mixer. Servicing this mixture are either a fleet of trucks or an industrial railroad. Concrete is placed on a sub-grade which has been prepared by graders, sub-graders, perhaps by power shovels or draglines if much material had to be removed, by road rollers and the concrete is leveled off and finished to line and grade by a surface finishing machine. Probably all this equipment is powered by gasoline engines.

Equipment used by a contractor in Georgia for carrying out a $700,000 municipal paving, sidewalk, curb and gutter contract included power operated, and heating equipment as follows:

Asphalt Surface

1—Asphalt plant.
1—Asphalt tank and coils.
1—Asphalt pump.
1—Steam crane.
4—Gasoline road rollers.
1—Steam winch.

On Concrete Base

1—Gasoline crane.
1—27-E paving mixer.

Grading

1—Steam shovel.
1—Tractor.
1—Road grader.
1—Gasoline shovel.

On Curb, Gutter and Sidewalk

3—Concrete mixers.
1—Curb and gutter trench excavator.

Servicing this job were 25 trucks.

A trench excavator operated by a 125 horsepower gasoline engine on sewer, water supply line or other trench excavation, working practically at capacity, consumes from 80 to 100 gallons per day of 9 hours and approximately one gallon of oil per day. The average use per year of this type of equipment reported by the Associated General Contractors is 9 months. At the other extreme of construction work is the small 1½ horsepower pump which advertises "I'll run on a gallon of gasoline every 4 or 5 hours."

The contractor is not the only

Heavy Duty Folio

367—The best constructed folio we have developed. Made from the best 6-oz. smooth black cowhide. Comfortable handles made to carry all the weight, relieving the strain on the seams. Reinforced bottom protected with studs. Three pockets. Two inner cases may be carried.

Less 10% for Cash
Other styles in our FREE Catalog

L-U-C-E

Builders of Sales Luggage
614 Delaware, KANSAS CITY, MO.

STURDY

as a steel girder is the BENETCO drum for shipping oil and other petroleum products. Made of the highest grade steel. And the welded seams laugh at the thought of leakage.

BENETCO drums stand the knock-about treatment that comes from hard-boiled handlers.

Your liquids will "stay-put" when you ship them in BENETCO drums. Descriptive literature on request.

BENETCO Steel Containers

WILSON & BENNETT Mfg. Co.

CHICAGO 6520 S. Menard Ave.
NEW YORK 39 Cortlandt St.

NULTRA BOWLS FILTER

out the Sun's Rays That Discolor Gasoline

The millions of motorists who prefer to buy gasoline from visible pumps are quick to notice discoloration caused by ultra-violet sun's rays. While discoloration may do little harm to the fuel, all marketers agree that discolored gasoline, exposed to the public eye, looks impure —is hard to sell.

NULTRA Bowls, the paractinic glass bowls exclusive to Gilbert & Barker pumps, are the only bowls that effectively filter out these discoloring rays, leaving only the inactive harmless sun's rays to enter the gasoline. These set off the product in all its sparkling purity and water-white brilliance. Protected against discoloration NULTRA-displayed gasoline SELLS.

This ability of NULTRA to make gasoline better to look at—easier to sell—has been demonstrated time and again by marketers who have tested NULTRA bowls against other glass bowls and numerous imitations. In the interest of greater gallonage—bigger profits—you should use it. Specify G. & B. visibles and you'll be sure to get NULTRA.

Write for full information about NULTRA and for bulletins T-176 and T-179. They will tell you all about Gilbert & Barker sight measure and mechanical measure models on which NULTRA bowls are available at no extra cost.

GILBERT AND BARKER
MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD, MASS.
Pumps for Every Station Need

Table III
Major Contracts Awarded United States, 1928

	No. of Projects	Value
Waterworks	539	$ 99,437,000
Sewers and waste disposal	771	100,669,000
Bridges	669	129,078,000
Excavations, etc.	211	37,660,000
Streets and roads	3,426	612,610,000
Industrial buildings	1,712	353,245,000
Other buildings	4,063	1,845,566,000
Federal government	507	69,881,000
Unclassified	651	302,525,000
Total	12,549	$3,550,671,000

user of construction equipment. State highway, county, city engineers, waterwork superintendents, railroads, industrial and utility engineers, who usually let contracts for new construction, own and operate equipment for maintenance. They are part of the construction industry and employ methods very similar to those of contractors.

Structures built by the engineering construction industry during 1928, by number and value of projects, are listed in Table III.

Minimum projects reported by *Engineering News Record:* water-works, excavation, drainage and irrigation, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Characteristics of Market

Multiple gasoline engine ownership and operation by individuals and firms making up the construction industry is an outstanding characteristic of this market for gasoline and its companion products, oil and grease.

A survey of the amount of gasoline bought per year by 140 representative contractors shows a range of from 200 to 200,000 gallons per year per contractor reporting.

Compared to the amount of construction work handled by contractors, the gasoline bought by contractors doing less than $100,000 worth of work per year ranges from 1200 to 50,000 gallons per year per contractor, with an average of 10,000 gallons per year per contractor in this group.

Contractors doing between $100,000 and $500,000 worth of work report from 200 to 70,000 gallons per year per contractor and average 19,300. From $500,000 to $1,000,000 of work per year, gasoline purchases range from 1500 to 100,000 gallons and average 26,800 gallons. Contractors doing more than $1,000,000 worth of work per year report gasoline purchases ranging from 3000 to 200,000 gallons per year per contractor and averaging 52,000 gallons per year per contractor.

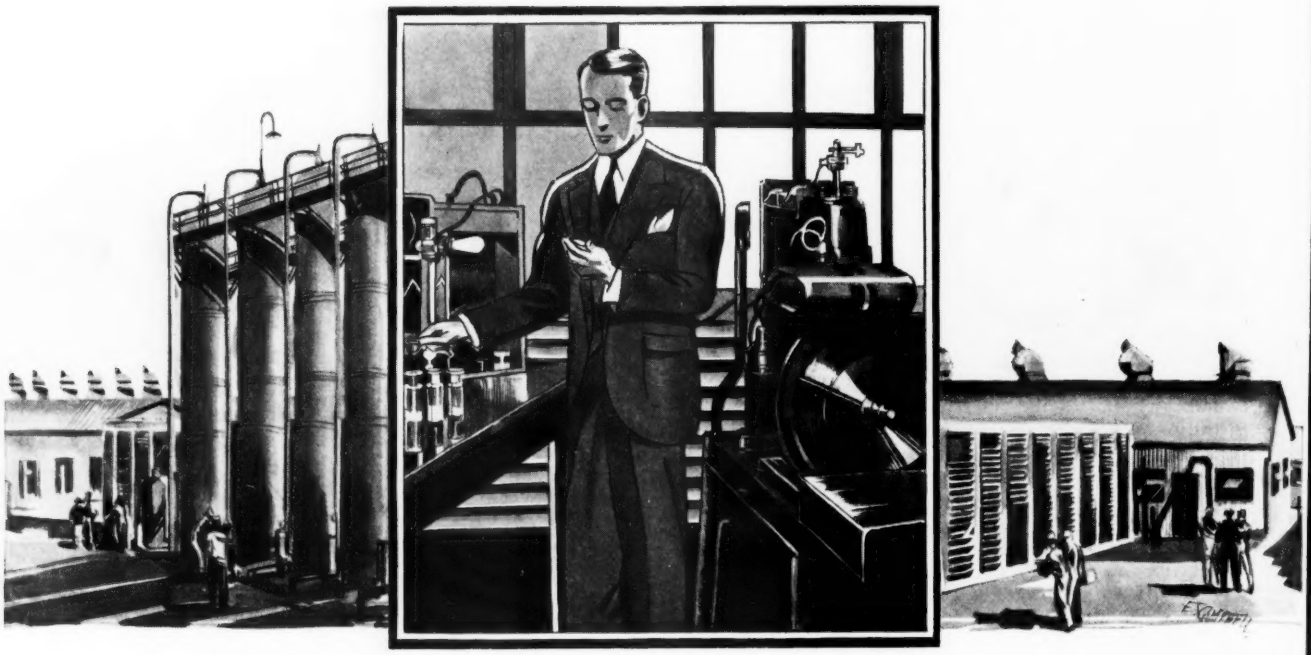
Diesel engines are entering the construction market as power for heavy equipment, shovels, cranes, locomotives, dredges. A comparison of fuel consumption of gasoline and diesel drives for a 75 horsepower shovel, summarized is:

Fuel and oil consumption 75 horsepower shovel assumed operating at average load of one-half capacity:

Gasoline engine consumes 6 gallons gasoline per hour, one gallon lubricating oil per day.

Diesel engine consumes 2½ gallons

Roller, tractor and graders on reservoir excavation



NATURALINE—*a Wonderful Medium for Blending*

is made from 100% Natural Gasoline and is not "doped" or blended with any other medium. It therefore offers the maximum in controlled volatility. Its anti-knock value equals ordinary domestic aviation gasolines (64-66 and 68-70) blended with from 20 to 25% Benzol. It will start instantly in coldest weather and will burn completely, distributing evenly to all cylinders, making for greater power output and smoother operation of the motor.

It will reduce fuel consumption, increase R.P.M. and weighs forty-six pounds per 100 gallons lighter.

Add to these, its purity and freedom from gumming and corroding substances reducing motor overhaul costs and its widespread popularity is readily appreciated.

Besides being "a super aviation fuel," Naturaline is a wonderful medium for blending a premium grade anti-knock, quick starting, smooth running fuel for motor cars.

The experience of jobbers who are marketing a Benzol blend has been that by using Naturaline they are able to reduce the percentage of Benzol as much as one-half and at the same time increase the volatility and anti-knock value.

Write for further information.

THE SUPER AVIATION MOTOR FUEL

NATURALINE

Product of the Naturaline Co. of America

Chestnut & Smith Bldg., Tulsa, Okla.

REDMOND & BRAMLEY OIL CO., INC.
RENSSELAER, N.Y.
August 21, 1928.
Naturaline Company of America,
Tulsa, Oklahoma.
Dear Sirs-
Att: Mr. C. W. Anderson
For the past several months we have been using Naturaline as a blend in making our Motoreet which is a Benzol Blend Fuel. Since using Naturaline we have cut the Benzol content 16% and have increased the quality of our Motoreet very materially.
At the present time we are blending Motoreet as follows:
60% California Gasoline
25% Benzol
25% Naturaline
We think we are justified in our belief that there is no motor fuel marketed in this section to compare with Motoreet in Anti-knock qualities, power and mileage. Since using Naturaline in our gallonage has increased materially.
The Albany Air Service, Inc., a company in which I am interested is handling Naturaline in aviation fuel at the new Albany Air Port, operating our ships wonderfully well in our own
DIXIE GASOLINE
THE POWER TO PASS THAT'S DIXIE GAS
STAEBLER OIL COMPANY
GENERAL OFFICES
ANN ARBOR, MICHIGAN
December 1, 1928.
Naturaline Company of America,
Tulsa, Oklahoma.
Attention Mr. Anderson
Gentlemen:
We are glad to say that Naturaline
all that you claim it to be as a blending
use a 25% mixture and find our anti-knock
a very gratifying increase in the fact of a
seasonal gasoline consumption.
We expect to be needing another
so that you may expect to hear from us in
future.
Yours truly,
Staebler Oil Co.
WESTLAND GASOLINE
DURA OIL
WESTLAND OIL COMPANY
MARKETERS OF QUALITY PETROLEUM PRODUCTS
MINOT, NORTH DAKOTA
Jan. 16, 1929
Mr. C. W. Anderson
Sales Manager
Naturaline Company of America
Tulsa, Oklahoma
Dear Mr. Anderson:
We have for the past three months been using a blend of Naturaline and U. S. Motor gasoline which we are offering to our trade as a special winter fuel with high anti-knock qualities. The result is that we have a fuel that is not only an easy starting gasoline, but also meets all the requirements of our state as an anti-knock fuel.
Although we have marketed this product for only a short time, we have found a very decided increase in the demand for it in preference to our regular grade of winter gasoline.
Yours very truly,
WESTLAND OIL COMPANY
President

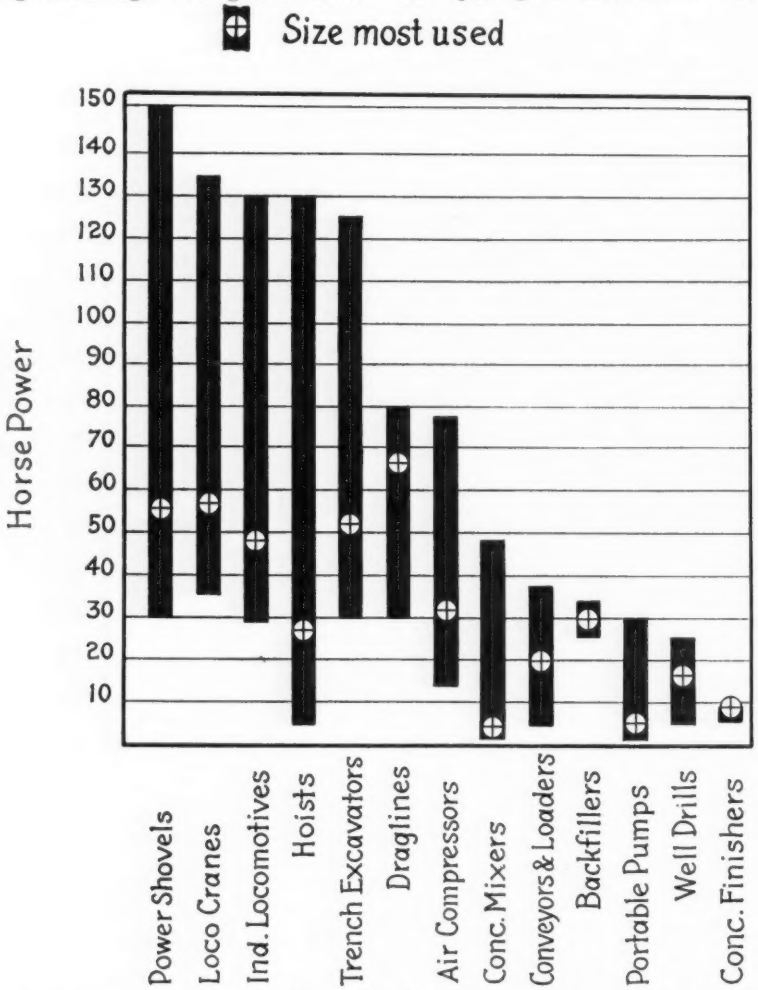
NATURALINE

Product of the Naturaline Co. of America

Chestnut & Smith Bldg., Tulsa, Okla.

fuel oil per hour, one-half gallon lubricating oil per day.

While the Diesel costs about $20 per horsepower more than the gasoline shovel of equal yard capacity, this initial cost is offset by the operating advantage during the work-



Size range of gasoline engines for different kinds of equipment used in construction field

ing year of 10 months reported for power shovels by the Associated General Contractors of America.

The same contractors reporting gasoline consumption report fuel oil purchases ranging from "none" to 1,800,000 gallons per year (by a dredging contractor). Oil for heaters, asphalt plants, tar and asphalt kettles is also used in the construction market.

Oil and grease consumption records are not kept in detail by the majority of contractors but contractors are being made more "lubrication conscious" if for no other reason than improvement in machines they buy and the promotional activities of equipment manufacturers.

Oil and grease consumption classified by the same size groups of contractors reporting gasoline consumption shows:

Contractors handling $100,000 and less work per year buy from 50 to 2000 gallons of cylinder oil per year per contractor and report transmission lubrication ranging from 10 to 260 gallons per year per contractor reporting. Two companies each report 200 pounds, and one 300 pounds, for open gear lubrication. Bearing lubrication ranges from 25 to 500 pounds per year in this group; one company reports 20 gallons and another 200 gallons.

In the $100,000 to $500,000 per year group cylinder oil reported ranges from 10 gallons to 15,000 gallons per year per contractor, transmission lubrication from 2 gallons to 4000 gallons per year per contractor and bearing grease from 10 pounds to 5000 pounds, per year per contractor. One company in this group reports 1½ to 2 tons for Alemite fittings and 2 to 3 tons of axle and heavy grease.

In the $500,000 to $1,000,000 per year the cylinder oil reported ranges from 200 gallons to 3000 gallons per year per contractor, transmission lubrication from 20 to 9900 gallons per year per contractor and 100 pounds, to 5000 pounds. Bearing grease from 50 pounds, to 1500 pounds, per year.

Contractors doing more than $1,000,000 per year report cylinder oil purchases from 100 gallons to 30,000 gallons per year per contractor, transmission lubrication from 50 gallons to 40 barrels per year per contractor and bearing grease from 100 pounds, to 15,000 pounds, per year per contractor. Much of the equipment now being sold to the construction industry is equipped with pressure lubrication systems.

Lubrication recommendations for construction machinery reported by C. S. Hill in "Winter Construction Methods" are given in the accompanying Table IV.

On construction jobs there are many miscellaneous uses of oil and grease, including the lubrication of wire rope, forms (paraffin oil is commonly used), chains, skips, buggies, hoisting machinery, wagons, industrial cars, jacks, buckets, trailers.

One contractor reports the use of five drums of grease on wire rope, two drums on chains and 100 drums of paraffin oil for forms. Another reports 300 to 400 gallons of paraffin oil on forms and another reports 300 gallons per year of paraffin oil used. Three or four contractors report the use of old cylinder or crankcase oil for wire rope and chains and three report the use of this material for forms.

Buying Habits

Contractors are tank truck customers primarily for gasoline, oil and grease, according to results of an inquiry by *Engineering News Record* on buying habits for supplies of this kind. The filling station or garage is next in importance as a purchase source for gasoline with "bulk from producer" ranking third as the source from which contractors purchase gasoline. For oil the filling station or garage and "bulk from producer" are used by an equal number of contractors but are secondary to the oil company's tank truck as a purchase source. The most common purchase source for grease is the oil company tank truck with "bulk from producer" second and filling station or garage third.

About 86 per cent of the contractors reporting consider quality first in buying gasoline, oil and grease, about 2 per cent consider price first and the balance consider quality and price equally. Approximately 65 per cent buy on a contract basis.

The men in field charge of construction work or of the equipment are the men who determine what kind of gasoline, oil and grease are bought for their jobs. This is true with the majority of contractors reporting.

The contractor or owner, the manager, the president, vice president, secretary or treasurer, the purchasing agent and the office are reported

for

SPEED
ACCURACY
LONG LIFE
LOW COST

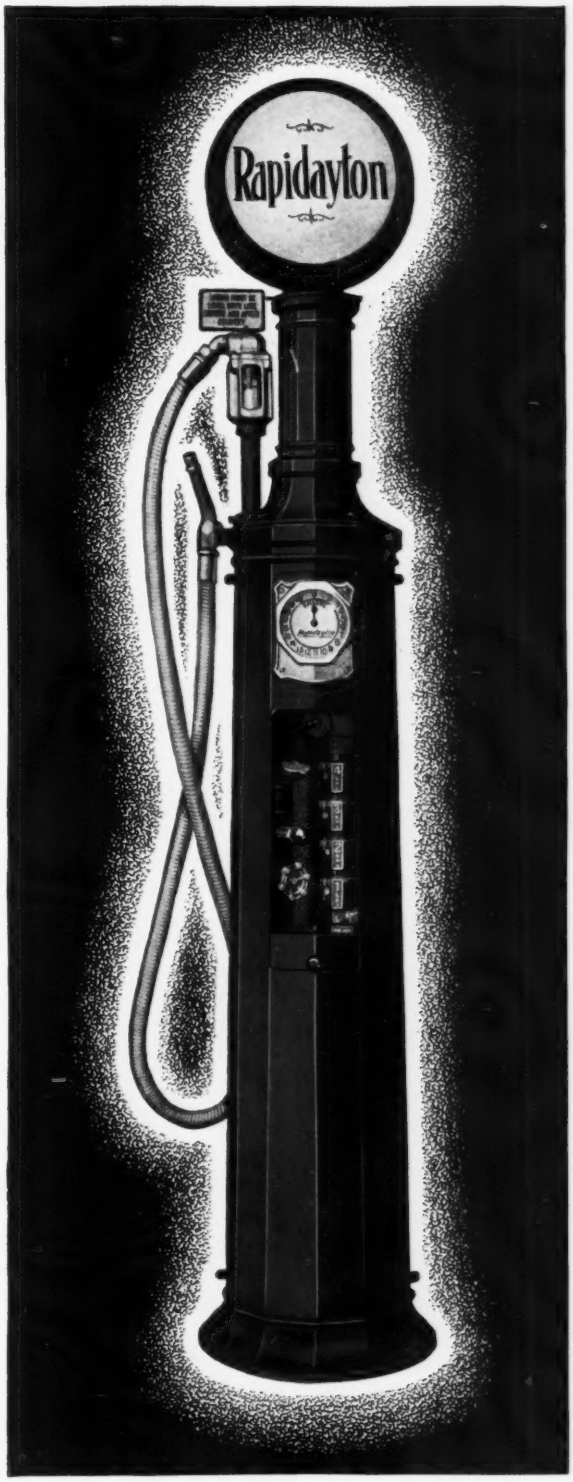
FOR peak output during the rush hours... for unfailing accuracy...for stamina to withstand long periods of hard use without servicing or adjustment...for these qualities and for its low cost, the BELL BOY is a favorite with hard-fisted marketers. The Dayton Pump & Manufacturing Company, Dayton, Ohio, U. S. A.

Rapidayton

© 1929 T. D. P. & M. Co

UNISHOT

The BELL BOY De Luxe is equipped with Unishot Lubrication which keeps all parts subject to wear thoroughly lubricated always. The station attendant simply presses a plunger each morning when unlocking the pumps. Oil lines extend even to the dial shaft bearings. UNISHOT LUBRICATION keeps the BELL BOY a NEW pump.



THE BELL BOY

by some firms to be responsible for purchases of this class of product but the superintendent is the man in 51 per cent, the master mechanic in 5 per cent, foremen in 10 per cent and engineer or plant engineer in 3 per cent of the companies reporting.

The superintendent is the most important influence on this class of purchase in all size groups; the contractor, owner, member of firm, "stockholders," influence is greatest in the groups handling less work per year; and the purchasing agent is greatest in the most work per year group, though still not influential in as many companies as is the superintendent.

Conclusion

Engineering construction is a major industry in its own right. It penetrates every other active growing industry and every community where public works are constructed. Since 1921 it has been characterized by a steady uniform growth, from $1,300,000,000 to $3,550,000,000 in value of annual contract awards. Diversification of the construction market stabilizes it and improvements financed by commercial, industrial and public funds insure its stability.

The petroleum industry now "filling station minded" can afford to appraise the construction industry as one of the markets which make it worthwhile to become "industrial market minded."

Broadcast Cold Warnings to Aid Sale of Radiator Alcohol

CLEVELAND

"WELL folks! The barometer is at 29 and the temperature now 30 degrees. Weather forecast for tonight and tomorrow is much colder with probable snow.

"Many automobiles are going to freeze up tonight because their owners are not prepared for the coming drop in temperature.

"Heed the official warnings and put an extra quantity of denatured alcohol into your radiator. A gallon of denatured alcohol is cheap insurance for protecting $300 worth of motor."

The foregoing is a sample of what will be broadcast many evenings next winter by 34 radio stations from coast to coast. It will be part of the merchandising efforts of the Industrial Alcohol Institute, Inc.

Weather forecasts will be broadcast each evening during the winter and warnings will be issued as cold waves approach the different localities in which the 34 radio stations are located. Motorists will be advised to prepare against colder weather by going to the nearest denatured alcohol dealer, usually an oil company station, to have his radiator solution tested and corrected for lower temperatures.

The radio is only one of several means by which the Industrial Alcohol Institute, whose nine members are reputed to manufacture 96 per cent of the denatured alcohol produced in the United States, will use to help oil marketers sell alcohol.

Preceding each cold wave half page advertisements are to be used in 200 daily newspapers. These advertisements will be released by telegraph as soon as the U. S. Weather Bureau announces the approach of freezing temperatures in any part of the country. Other half page advertisements will be published from time to time during the winter as cold waves sweep across the country. Smaller reminder advertisements will be used between the times the half page displays are published.

The institute also is using advertisements in four national magazines besides a series in the trade press. Billboards are to be used in important centers of popu'ation in and east of Omaha and Kansas City and north of the Mason and Dixon line.

Wherever temperatures fall below freezing oil marketers that deal in denatured alcohol will be supplied with wall signs, indoor window streamers and 18 x 26-inch outdoor signs, each of which bears this assertion of the institute: "Denatured Alcohol the best Anti-Freezer." On each sign also is this announcement, "Free Testing Service," printed on a light octagon. Each dealer is to be supplied with a merchandising manual.

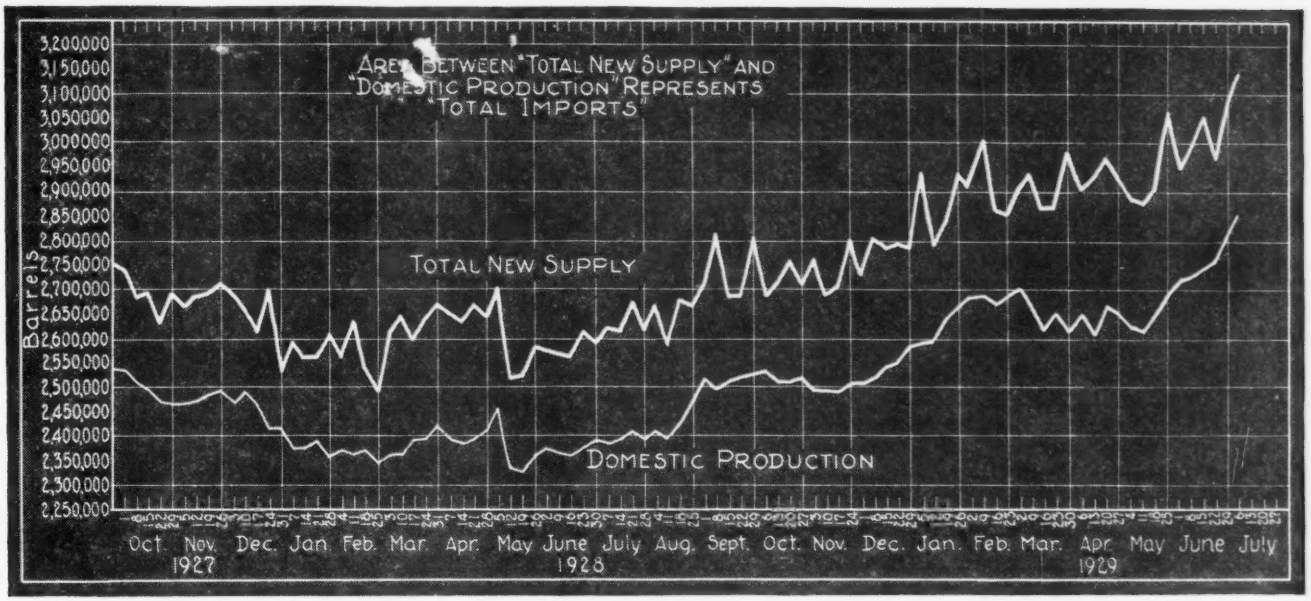
The institute has announced that a corps of 200 men will call on all dealers before consumer demand begins next fall. These men will not be salesmen, it is said, but will give the dealers the helps which are expected to increase the use of denatured alcohol as an anti-freeze agent from 30,000,000 gallons used last winter to 35,000,000 gallons.

CINCINNATI, July 6.—A new type of dealer window sign will be processed in the new addition to the factory of the Palm Bros. Decalcomania Co. here. The unusual feature of this sign is its adaptability for different purposes. In addition to the usual placement on inside of glass windows and doors, a reverse application can be made on opaque surfaces such as display cases, trucks, automobiles, etc.

Table IV—Lubrication Recommendations for Construction Machinery

Part to be Lubricated	Viscosity Seconds Saybolt Summer	Winter	Pour Test Range for Winter Service deg. F.
Gears — Exposed or merely guarded	2000 at 210°		
Gears—Enclosed, where bath lubrication is possible	1000 at 210	115-200 at 210	15 or lower
Wire rope	1000 at 210	500-600 at 210	
Chains—Roller type unusually exposed	1000 at 210	500-600 at 210	
Chains—Silent or link type			
Exposed	115-120 at 210	70-80 at 210	10 or lower
Enclosed	70-80 at 210	55-60 at 210	0 if possible
Steam cylinders	130-150 at 210	120-130 at 210	As low as possible
Link pins and rollers of caterpillar tractors	200 at 210	115 at 210	15 or lower
Internal combustion engines	See recommendations of builders and oil companies, according to type and size of engines and fuel used.		0 if possible
Electric motors			
Ring oiled bearings	300 at 100	180-200 at 100	0
Ball and roller bearings			
Oil lubricated	150-200 at 100	100 at 100	0
Grease lubricated	A grease of light or medium consistency		
Journal boxes	100 at 210	60 at 210	15 or lower
Miscellaneous other bearings			
Oil lubricated	300-500 at 100	200-300 at 100	0
Grease lubricated	Medium cup grease	Light cup grease	

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	July 6	June 29
Production east of Rockies	**1,978,800**	**1,954,900**
Increase		**23,900**
Total production in U. S.	**2,857,400**	**2,815,400**
Increase		**42,000**
Crude oil imports	**290,571**	**276,857**
Increase		**13,714**
Total crude supply	**3,147,971**	**3,092,257**
Increase		**55,714**

OKLAHOMA

	July 6	June 29
Allen Dome	25,000	24,200
Blackwell	3,850	3,850
Bowlegs	34,650	35,300
Braman	3,800	3,750
Bristow-Slick	18,750	18,750
Burbank	19,700	19,750
Carr City	14,100	13,650
Cromwell	8,100	8,150
Cushing	18,550	18,550
Davenport	1,450	1,450
Duncan District	7,250	7,250
Earlsboro	80,700	74,050
East Seminole	5,350	.....
Fox	1,400	1,400
Garber	5,800	5,850
Graham	4,250	4,250
Healdton	12,850	12,900
Hewitt	8,050	8,050
Hubbard	1,850	1,850
Little River	81,000	77,250
Logan County	19,300	19,200
Maud	12,250	12,850
Mission	34,850	34,800
North Okmulgee	12,800	12,800
Oklahoma City	17,250	9,800
Osage (outside Burbank)	26,550	26,550
Papoose	3,300	3,300
Pearson	1,250	1,250
St. Louis	79,350	81,350
Scholem-Alechem	12,750	12,800
Searight	12,060	12,250
Seminole	34,200	34,100
South Okmulgee	8,350	8,350
Thomas	900	950
Tonkawa	9,950	10,000
Wewoka	4,750	4,800
Yale-Jennings	6,950	6,950
Others	64,550	66,050
Total, Oklahoma	717,800	698,400
Increase		19,400

KANSAS

Augusta-Fox Bush	3,100	3,100
Churchill	6,100	6,400
Eldorado-Towanda	12,900	12,900
Florence-Covert	950	950
Greenwood County	21,300	21,300
Oxford	4,600	4,500
Peabody-Elbing	2,750	2,800
Rainbow Bend	1,050	1,050
Russell	3,300	3,300
Sedgwick County	34,350	34,600
Others	32,000	31,000
Total, Kansas	122,400	121,900
Increase		500

NORTH LOUISIANA

	July 6	June 29
Bellevue	600	600
Caddo, light	8,350	8,400
Caddo, heavy	3,300	3,400
Cotton Valley	2,600	2,750
De Soto and Red River	3,800	3,850
Elm Grove	600	600
Haynesville	5,200	5,250
Homer	3,900	3,900
Pleasant Hill	500	500
Urania	5,950	5,900
Others	250	250
Total, North Louisiana	35,050	35,400
Decrease		350

ARKANSAS

Champagnolle	7,700	7,200
El Dorado	4,600	4,550
Lisbon	1,250	1,250
Nevada	950	950
Smackover, light	6,050	6,100
Smackover, heavy	47,600	48,400
Stephens	1,000	1,000
Others	100	100
Total, Arkansas	69,250	69,550
Decrease		300

TEXAS (Outside Gulf Coast)

Panhandle District

	July 6	June 29
Carson County	7,550	7,650
Gray County	52,950	51,300
Hutchinson County	25,750	25,550
Wheeler County	950	800
Others	1,200	1,250
Total, Panhandle Texas	88,400	86,550
Increase		1,850

North Texas

Archer County	18,150	17,850
Burkburnett	8,950	8,800
Electra	12,200	12,350
Iowa Park and K.M.A.	4,900	4,950
Montague-Cooke	12,750	12,900
Wilbarger	26,200	26,300
Others	700	700
Total, North Texas	83,850	83,850

West Central Texas

	July 6	June 29
Brown County	7,700	7,750
Callahan County	4,450	4,300
Coleman County	4,200	3,850
Eastland-Desdemona	6,700	6,550
Jack County	2,950	2,800
Palo Pinto County	350	350
Shackelford County	11,700	11,800
Stephens County	6,200	6,250
Throckmorton County	700	700
Young County	6,900	6,950
Others	600	600
Total, West Central Texas	52,450	51,900
Increase		550

West Texas

	July 6	June 29
Crane and Upton Counties	46,700	46,450
Crockett County	1,950	2,000
Howard County	43,350	42,500
Jones County	3,200	3,300
Mitchell and Scurry Counties	2,800	2,700
Pecos County	117,500	110,100
Reagan County	18,100	18,200
Winkler County	140,300	142,250
Others	1,550	1,600
Total, West Texas	375,450	369,100
Increase		6,350

East Central Texas

Boggy Creek	2,950	2,850
Corsicana-Powell	7,600	7,700
Currie	350	350
Mexia	5,500	5,600
Nigger Creek	400	400
Richland	400	400
Wortham	1,000	1,000
Total, East Central Texas	18,200	18,300
Decrease		100

Southwest Texas

Dale	400	400
Laredo District	10,800	10,950
Luling	12,150	11,950
Lytton Springs	900	900
Salt Flat	47,900	50,200
Somerset	1,750	1,700
Others	3,850	3,700
Total, Southwest Texas	77,750	79,800
Decrease		2,050
Total, Texas (Outside Gulf Coast)	696,100	689,500
Increase		6,600

GULF COAST

Coastal Texas

	July 6	June 29
Barbers Hill	8,700	10,200
Batson	1,350	1,450
Big Creek	4,250	4,000
Blue Ridge	3,700	4,250
Boling	1,500	1,550
Damon Mound	600	650
Goose Creek	5,600	5,700
Hull	8,150	8,400
Humble	5,600	5,500
Orange County	2,900	3,000
Pierce Junction	18,000	17,600
Raccoon Bend	6,500	6,600
Saratoga	850	850
Somerville	2,550	2,650
Sour Lake	2,700	2,750
South Liberty	5,350	5,300
Spindletop	27,050	26,800
Sugarland	13,100	12,600
West Columbia	6,250	6,450
Others	3,400	4,000
Total, Coastal Texas	128,100	130,300
Decrease		2,200

Coastal Louisiana

	July 6	June 29
East Hackberry	2,950	2,000
Edgerly	700	700
Evangeline	2,900	2,800
Lockport	3,500	3,700
Old Hackberry	2,100	2,300
Sorrento Dome	200	200
Sulphur Dome	1,700	2,000
Sweet Lake	200	300
Vinton	4,200	4,250
Others	700	700
Total, Coastal Louisiana	19,150	18,950
Increase		200
Total, Gulf Coast	147,250	149,250
Decrease		2,000

ROCKY MOUNTAIN

Wyoming

	July 6	June 29
Bug Muddy	2,250	2,250
Elk Basin	750	750
Grass Creek	2,250	2,300
Labarge	2,100	2,100
Lance Creek	200	250
Lost Soldier	4,150	3,900
Oregon Basin	4,300	4,300
Rock Creek	2,400	2,300
Salt Creek	29,000	30,850
Others	3,650	3,900
Total, Wyoming	51,050	52,900
Decrease		1,850

Montana

Cat Creek	1,450	1,450
Pondera	3,200	3,150
Sunburst	6,850	6,850
Others	100	100
Total, Montana	11,600	11,550
Increase		50

Colorado

Florence	1,050	1,000
Fort Collins	2,200	2,500
Moffat (Craig)	1,550	1,600
Others	2,500	2,450
Total, Colorado	7,300	7,550
Decrease		250

New Mexico

Artesia	800	850
Hogback	150	150
Rattlesnake	.....	100
Table Mesa	500	.....
Others	450	450
Total, New Mexico	1,900	1,550
Increase		350
Total, Rocky Mountain	71,850	73,550
Decrease		1,700

CALIFORNIA

Dominguez	10,000	10,000
Elwood-Goleta	28,900	29,500
Huntington Beach	45,000	43,500
Inglewood	23,500	23,500
Kettleman Hills	3,400	3,400
Long Beach	178,000	176,500
Midway-Sunset	66,000	64,500
Rosecrans	6,300	6,300
Santa Fe Springs	268,000	255,500
Seal Beach	50,000	50,000
Torrance	13,000	13,000
Ventura Avenue	59,000	59,000
Others	127,500	125,300
Total, California	878,600	860,500
Increase		18,100

EASTERN

(Including Ill., Ind., Ky., Ohio, W. Va., Pa., and N. Y.)	119,000	117,350
Increase		1,650

Compilation Of Mid-Continent Refinery Operations

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National Petroleum News

Mid-Continent Refinery Operations Week Ended July 5 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended July 5
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)	92,000	160,200	86,600	81,500	54,900	475,200
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	68,362 — 3.3	111,657 — 9.1	68,059 + 2.0	49,407 — 3.3	58,589 — 3 9	356,074 — 4.3
Da. Av. Other Oils	6,337 — 33.3	5,997 + 38.5	1,195 — 55.6	1,976 — 24.6	2,267 + 38.5	17,772 — 14.4
GASOLINE—Gallons						
Stocks, June 28	31,152,000	74,725,000	17,116,000	9,596,000	12,585,000	145,174,000
Prod. 6-28 to 7-5	10,772,000 + 4.7	18,059,000 — 4.4	8,707,000 + 0.9	3,630,000 — 9.5	5,712,000 + 3.1	46,880,000 — 3.0
Ship. 6-28 to 7-5	11,763,000 + 3.2	19,279,000 + 6.2	8,314,000 — 7.5	4,842,000 + 44.8	5,354,000 + 20 0	49,552,000 + 6.9
Stocks, July 5	30,161,000 — 3.2	73,505,000 — 1.6	17,509,000 + 2.3	8,384,000 — 12.6	12,943,000 + 2.8	142,502,000 — 1.8
Ratio Sales to Prod.	109.2%	106.7%	95.5%	133 4%	93.7%	105.7%
KEROSENE—Gallons						
Stocks, June 28	8,627,000	6,491,000	2,758,000	14,000	983,000	18,873,000
Prod. 6-28 to 7-5	2,199,000 — 9.2	2,102,000 — 10 3	1,667,000 + 8.7	12,000	232,000 — 37.8	6,212,000 — 6.9
Ship. 6-28 to 7-5	1,857,000 — 12.9	2,089,000 — 10.0	2,003,000 + 46.6	10,000 — 16.7	22,000 — 28.6	5,981,000 — 2.6
Stocks, July 5	8,969,000 + 4.0	6,504,000 + 0.2	2,422,000 — 12.2	16,000 + 14.3	1,193,000 + 21.4	19,104,000 + 1.2
Ratio Sales to Prod.	84.4%	99.4%	120.1%	83.3%	9.5%	96.3%
STOVE DISTILLATE—Gallons						
Stocks, June 28	1,196,000	4,173,000	588,000	160,000	75,000	6,192,000
Prod. 6-28 to 7-5	206,000 + 25.6	639,000 + 40.0	163,000 — 4.7	101,000 — 17.9	109,000 + 5.8	1,218,000 + 18.1
Ship. 6-28 to 7-5	99,000 — 2.0	220,000 — 36.4	101,000 + 27.8	41,000 — 52.9	85,000 — 11.5	546,000 — 23.0
Stocks, July 5	1,303,000 + 8.9	4,592,000 + 10.0	650,000 + 10.5	220,000 + 37.5	99,000 + 32.0	6,864,000 + 10.9
Ratio Sales to Prod.	48.1%	34.4%	61.9%	40.6%	78.0%	44.8%
GAS OIL—Gallons						
Stocks, June 28	9,105,000	29,011,000	3,979,000	14,574,000	7,609,000	64,278,000
Prod. 6-28 to 7-5	1,726,000 — 14 0	2,298,000 — 10.7	1,605,000 — 4.4	582,000	1,795,000 — 24.7	8,006,000 — 6.7
Ship. 6-28 to 7-5	632,000 — 80.4	2,787,000 +143.0	1,700,000 + 7.7	312,000 — 83.3	1,837,000 — 46.0	7,268,000 — 35.2
Stocks, July 5	10,199,000 + 12.0	28,522,000 — 1.7	3,884,000 — 2.4	14,844,000 + 1.9	7,567,000 — 0.6	65,016,000 + 1.1
Ratio Sales to Prod.	36.6%	121.3%	105.9%	53.6%	102.3%	90.8%
FUEL OIL—Gallons						
Stocks, June 28	15,085,000	60,783,000	52,565,000	34,225,000	28,609,000	191,267,000
Prod. 6-28 to 7-5	6,455,000 + 0.7	7,014,000 — 11.2	7,642,000 — 1.6	7,859,000 — 6.4	7,851,000 — 4.3	36,821,000 — 4.8
Ship. 6-28 to 7-5	5,548,000 — 5 4	7,414,000 + 12.6	10,630,000 + 67.1	7,766,000 — 6.8	7,592,000 — 34.1	38,950,000 + 0.7
Stocks, July 5	15,992,000 + 6.0	60,383,000 — 0.7	49,577,000 — 5.7	34,318,000 + 0.3	28,868,000 + 0 9	189,138,000 — 1.1
Ratio Sales to Prod.	85.9%	105.7%	139.1%	98.8%	96.7%	105.8%

Gasoline Produced by Various Methods, Week Ended July 5

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	7,178,000	66.6	11,443,000	63.4	6,113,000	70.2	3,370,000	92.8	2,110,000	36.9	30,214,000	64.4
Cracked	3,221,000	29.9	5,489,000	30.4	1,899,000	21.8	135,000	3.7	3,064,000	53.6	13,808,000	29.5
Natural	373,000	3.5	1,127,000	6.2	695,000	8.0	125,000	3.5	538,000	9.5	2,858,000	6.1
Total	10,772,000		18,059,000		8,707,000		3,630,000		5,712,000		46,880,000	

+ or — columns are % change over previous week.

Gasoline Shipments Increase; Stocks Lowered

Staff Special—By Telegraph
TULSA, July 9

A REDUCTION in crude runs and an increase in gasoline shipments during the Fourth of July week resulted in Mid-Continent refiners reducing gasoline stocks substantially, 93 have reported to NATIONAL PETROLEUM NEWS.

Crude charges were reduced in Kansas, Oklahoma, West Texas, and Louisiana-Arkansas but increased slightly in North Texas. The reduction for the field as a whole amounted to 16,000 barrels daily average. Kansas accounted for 2300 barrels, Oklahoma for 11,000 barrels, West Texas 1600 barrels and Louisiana-Arkansas for 2300 barrels while North Texas increase was 1300 barrels daily average.

Gasoline production was decreased in Kansas, Oklahoma, West Texas, and Louisiana-Arkansas and was in-

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended July 5. Change in stocks figured from June 7.

GASOLINE

	Gallons
Production	189,904,000
Shipments	188,474,000
Net change in stocks	1,430,000
Ratio sales to production	99.2%

KEROSENE

Production	25,846,000
Shipments	24,219,000
Net change in stocks	1,627,000
Ratio sales to production	93.7%

STOVE DISTILLATE

Production	4,724,000
Shipments	3,250,000
Net change in stocks	1,474,000
Ratio sales to production	68.8%

GAS OIL

Production	33,276,000
Shipments	33,018,000
Net change in stocks	258,000
Ratio sales to production	99.2%

FUEL OIL

Production	154,228,000
Shipments	150,556,000
Net change in stocks	3,672,000
Ratio sales to production	97.6%

creased 170,000 gallons in North Texas. Production for the field was reduced 1,400,000 gallons.

Shipments increased almost 400,000 gallons in Kansas while increases of approximately 1,000,000 gallons were registered in each of Oklahoma, West Texas and Louisiana-Arkansas districts. The decrease in shipments in North Texas virtually offset the increase in Kansas and shipments for the Mid-Continent accordingly increased 3,200,000 gallons. This increase in the face of the decrease in production caused a draft on stocks amounting to 3,600,000 gallons.

Kansas as well as Oklahoma and the West Texas refiners withdrew from storage. The North Texas and Louisiana-Arkansas refiners increased their stocks, the former by almost 400,000 gallons and the latter by 360,000 gallons.

Kerosene production was decreased in each district except North Texas and West Texas. The reduction for the field amounted to 460,000 gallons. Shipments decreased in each district except North Texas the net reduction for the field amounting to 150,000 gallons. Stocks accordingly were increased 200,000 gallons with North Texas refiners being the only ones who drew on stocks.

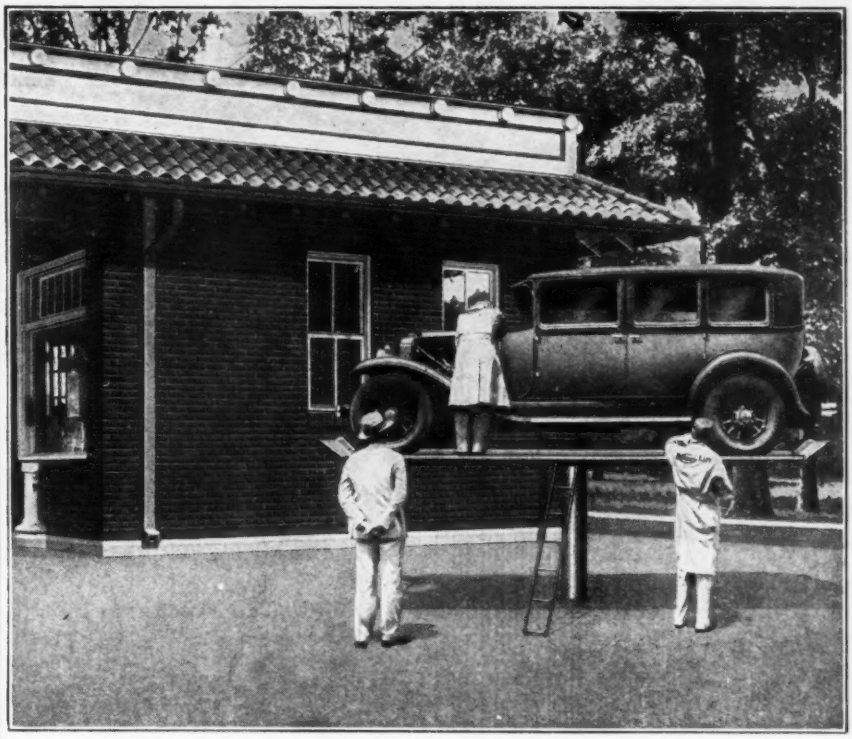
Production of stove distillate as well as shipments was about in line with the seasonal demand of this commodity.

Gas oil production was curtailed 500,000 gallons with each district except West Texas sharing in the reduction. Indicated shipments fell 4,000,000 gallons because of a peculiar situation. One reporting company recently transferred a large quantity to a subsidiary. At the time, the goods were reported as shipped. The oil was returned last week. This return to stocks subsequently cut down the shipment figure. Stocks in the field increased 800,000 gallons.

Fuel oil stocks were reduced 2,000,000 gallons. Production was reduced almost 2,000,000 gallons and shipments increased 300,000 gallons. Shipments increased in Oklahoma almost 1,000,000 gallons and in North Texas approximately 4,000,000 gallons. These two districts were the only ones to reduce stocks but their reduction was sufficient to offset additions in other districts.

Fire Destroys Crude Tank

PITTSBURGH, July 8.—A 25,000-barrel crude oil tank was destroyed by fire at the pumping station of the National Transit Co. at Ingomar, near here, Sunday night. Lightning was believed to have caused the fire which started during a severe storm. Feed lines to the two Waverly Oil Co. plants were shut off temporarily, but refinery operations were not hampered.



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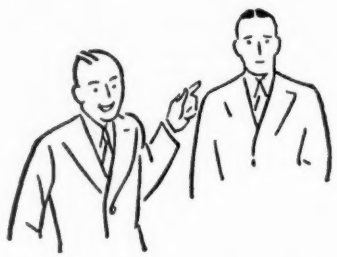

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National Petroleum News

Gasoline Business Fails to Increase In Mid-Continent After July 4

Staff Special
TULSA, July 6

THE post-holiday gasoline buying which many refiners in the Mid-Continent had anticipated apparently was developing slowly if at all, and the market generally was quiet throughout the first week in July. Spot prices were generally unchanged but some over the month sales were reported at prices somewhat under the spot price levels.

Natural gasolines also were in only fair demand. Only minor changes were made in prices.

Kerosene demand was lighter in many quarters and a few refiners announced price reductions before the end of the week.

Gas oils and distillates were unchanged both in price and demand. There was very little spot buying of distillates.

Inquiries were fair for fuel oils for both spot and over the month delivery at prices which have been generally unchanged the past few weeks. Neutral oils and cylinder stocks continued to be in active demand. Wax inquiries also were reported more numerous.

Gasolines

The first week of July which generally is one of the best of the year for gasoline demand due to the July 4 holiday failed this year to sustain its record of past years, according to many Mid-Continent refinery sales managers. Jobber buying was considerably lighter than had been anticipated in many quarters although contract movement of goods was reported good by a majority of refiners.

Three of four major companies were understood to have attempted to buy up to 500 cars of gasoline presumably in an effort to give support to the tank wagon and service station prices. A check of refiners in the Mid-Continent, however, revealed that much of the so-called distress gasoline was either off specifications or the color was not water white. As far as could be learned no purchases were made.

Spot gasoline prices were generally unchanged in Oklahoma and Kansas, but some sales for over July were reported at prices from 0.25 to 1 cent below the spot market. In most instances this gasoline was not full specification U. S. Motor but a few sales included specification goods. Major refiners who in most instances can handle a fair sized quantity of gasoline in storage continued to quote 9 to 9.25 cents a gallon for 58-60 U. S. Motor. Other refiners not so fortunately situated sold goods from 8.25 cents up.

North Texas refiners were anxiously watching the Gulf export market. Until there is some change in that market which would permit export buyers to enter the Mid-Continent, north Texas refiners will have to depend on the domestic market and they have competition on all sides, with freight rates against them to many points.

West Texas refiners experienced only a fair amount of business. Their quotations for 58-60, 437 e.p. gasoline ranged from 8 to 8.50 cents, f.o.b. refinery. The higher crude prices have caused some of them to operate at a decided loss for the past several weeks.

Arkansas and Louisiana refiners experienced only a fair demand for gasolines, a majority of them reported. Prices for differential movement remained generally unchanged throughout the week.

Natural Gasolines

The purchase by a large manufacturer of around 200 cars of grade BB early in the week gave some support to that part of the market. Another company continued to buy grade AA at market prices. Grade C was comparatively scarce and prices were in line with those for grade BB.

A few manufacturers reported inquiries and purchases from refiners had increased the past week. This was taken as an indication in many quarters that refiners anticipated a better gasoline demand the next few weeks.

Kerosenes

Kerosenes lost ground in Oklahoma and north Texas. Price of 41-43 w.w. grade in Oklahoma July 6 was 5.50 to 5.75 cents a gallon. Two or three major refiners who had been quoting 6 cents a gallon announced reductions to the 5.75 cent level soon after the July 4 holiday.

A few refiners were of the opinion the kerosene market had about had its play for the summer harvest season. Others continued to anticipate a better demand later in the summer. Kansas refiners reported orders were fairly good for shipment in their normal marketing territory, due to the harvest.

Arkansas and Louisiana refiners reported kerosene demand had slowed up somewhat but prices were generally unchanged throughout the week.

Distillates, Gas and Fuel Oils

Oils and distillates remained in their seasonal slump. Prices were generally unchanged in all districts, both for the distillates and the gas oils.

Several refiners reported inquiries good in volume for fuel oils but prices quoted for over the month were generally in line with spot market prices.

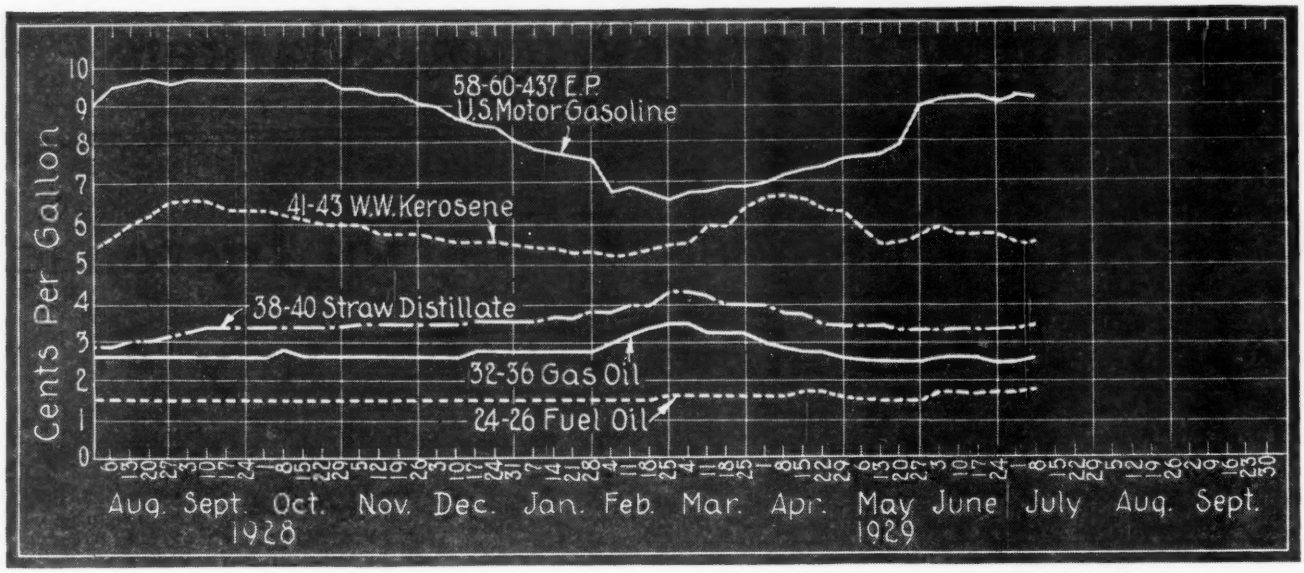
One refiner reported a 50 car sale of low gravity fuel oil to a railroad the past week at 50 cents a barrel. Prices for low gravity fuels ranged from 45 cents up. The high sulfur oils were moved generally at 5 cents a barrel less than the low sulfur oils.

Neutral Oils, Cylinder Stocks

Bright stock continued to be in active demand, a majority of refiners making these oils reported. Neutral oils also were in active demand in most quarters. Prices were generally unchanged from those prevailing June 29.

Wax was in more active demand in some quarters and prices moved up 0.125 cent a pound.

Current Prices of Principal Mid-Continent Refined Products



Prices shown are on Group 3 basis and extended to dat e shown in Refinery Market Tables Section of this issue

Montgomery Ward Opens Ten Auto Stores

CHICAGO, July 6.—Montgomery Ward & Co., July 6 opened ten retail tire, automobile accessory, and motor oil stores in various parts of Chicago. Each store covers approximately 2100 square feet.

These stores will carry a complete line of tires, batteries, tubes and other automobile accessories. One kind of motor oil will be carried. This is called "High Grade Motor Oil" and on opening day retailed at 39 cents a gallon or a 5-gallon can for $1.35. Whether or not this would be the regular price of this oil could not be learned. No other oils or petroleum products will be carried.

Little information as to the specifications of this oil or from what district it was purchased were available but the Montgomery Ward company guarantees it as a first class motor oil.

This marks the first departure from the Montgomery Ward & Co.'s old policy of operating only retail department stores. It is the company's idea to make these ten stores the first step towards the establishment of a chain of about 1500 tire and accessory stores throughout the country. These stores will be in cities of over 75,000 inhabitants.

Cleveland Oil Men Plan Merchandising Talks

CLEVELAND, July 6.—Western Reserve Petroleum Club under the presidency of Newman F. Squire, Pocahontas Oil Co., Cleveland, is planning a series of addresses on merchandising and advertising in all its phases including the training of station salesmen.

The club at a recent meeting was addressed by James Leslie Hubbell, a Cleveland advertising man.

Mandoff Back in Oil Business

WORCESTER, Mass., July 8.—Victor Mandoff, who recently sold the Victor Filling Stations, Inc., here to the Standard Oil Co. of New York, plans to re-enter the oil business as soon as his plant here is completed.

The business will be conducted under the name of the Victor Petroleum Products, Inc. Headquarters will be at Worcester. The company will operate only in Massachusetts.

S. O. Louisiana Buys Liberty Oil Co.

NEW ORLEANS, July 6.—The Standard Oil Co. of Louisiana has purchased the assets and good will of the Liberty Oil Co. of New Orleans. The sale was consummated July 1. The consideration was not announced.

The Liberty Oil Co. owned and operated a 5,000-barrel refinery, and had four bulk stations outside of New Orleans, also 20 service stations in New Orleans. The company also did a general jobbing business in tank car lots, selling gasolines, kerosenes and other refinery products as well as its own brand of compounded lubricating oils.

The Liberty refinery will not be operated by the Standard company, according to an announcement by an official of the latter company.

Prices 10 Years Ago

Prices of principal refined products, Chicago tank wagon and crude 10 years ago (July 7, 1919), were:

Oklahoma: 58-60 U. S. Motor, 18.00-18.25c; 80-84 Natural gasoline, 23.50c; 41-43 w.w. kerosene, 8.75-9c; 24-26 fuel oil, $0.80 per barrel.

Pennsylvania: 58-60 U. S. Motor, 20.50-21.00c; 47 w.w. kerosene, 10.75-11.00c; 38-40 fuel oil, 4.25-4.75c.

Tank wagon: Chicago, 22c.

Crude: Mid-Continent, 35-35.9 gravity, $2.25; Pennsylvania, $4.

Prices A Year Ago

Prices of principal refined products, Chicago tank wagon and crude, a year ago (July 9, 1928), were:

Oklahoma: 58-60 U. S. Motor, 8.0732c; Grade A natural, 7.375-7.50c; 41-43 kerosene, 4.50-4.75c; 24-26 fuel oil, $0.675-$0.725 per barrel.

Pennsylvania: 58-60 U. S. Motor, 10.50-11.00c; 47 w.w. kerosene, 6.875-7.25c; 36-40 fuel oil, 5.00-5.125c.

Tank wagon: Chicago 14c.

Crude: Mid-Continent 35-35.9 gravity, $1.25; Pennsylvania, $3.10.

Chicago Resale Market

Post-Holiday Demand Disappointing

Staff Special

CHICAGO, July 6

POST holiday gasoline demand fell far below expectations of the Chicago trade. In spite of heavy consumption over the July 4th period, orders from jobbers were no more numerous Friday and Saturday than they were before the holiday. Small lots of distress goods began to appear in the market Saturday as a result and many of the trade were inclined to think it would grow in volume.

There were, on the other hand, those of the trade who believed the effects of large consumption over the holiday would not be felt until next week. Their ideas were that jobbers wouldn't have much chance to check up on stocks until after the week end.

Too, many people extended their holiday through the week end, and it was felt that withdrawals from storage Saturday and Sunday in addition to the holiday drafts on stocks would bring a good many jobbers into the market next week.

The first signs of lower prices Friday and Saturday come from carlot marketers handling north and west Texas gasolines. Refiners in north Texas particularly, have failed as yet to get any relief from export buyers with the result that their offerings for northern movement through the Chicago resale trade have continued abnormally high.

Small lots of U. S. Motor gasoline were offered by carlot marketers at prices that figured 8.125 cents Group 3. Unconfirmed reports were to the effect that some goods had been quoted out at 8 cents Group 3. The volume of low priced stuff involved, however, was insufficient to be considered representative of the general market.

U. S. Motor was freely offered at last week's low of 8.25 cents. Many companies continued to quote 9.25 cents Group 3 although by far the majority of them reported they were not getting any business at this price. It was indicated in some quarters Saturday that there might be a downward revision in prices next Monday which would tend to narrow the wide range of prices quoted through the Chicago trade.

Bids for the Chicago post office requirements of gasoline for the third quarter of this year were made public this week. Shaffer Oil & Refining Co. was awarded the contract for 220,000 gallons of U. S. Motor, the price to be the average of the spot market as quoted in the Chicago Journal of Commerce on date of shipment. The post office is guaranteed a maximum price of 9.50 cents a gallon. Shaffer is to receive 0.5-cent a gallon for handling, and is to give 1 per cent off for cash in ten days.

Perhaps the most attractive bid was that made by the Geo. C. Peterson Co. It was identical with that of Shaffer except that it offered 0.125-cent off the average shown in the Chicago Journal of Commerce.

Kerosene was lifeless the past week. Orders continued to be few and far between. The trade generally looks for little activity in this section of the market until the late summer harvesting season sets in. Water white kerosene, 41-43 gravity, was freely offered at 5.50 cents; some reports indicated this figure might be shaded. Several companies continued to ask 5.75 cents for this grade.

Demand for gas and fuel oils continued good in spite of the slump in consumption which has been anticipated and which is usually experienced at this time of year. Industry continues to operate at a high rate. The usual summer falling off in steel production has failed to appear as yet which, according to many of the trade, accounts for the heavy demand for fuel oil from industrial users.

The continued good demand from industrial users together with heavy demand in the field for cracking caused several companies to advance their prices for fuel oils from 2.5 to 5 cents per barrel late this week.

More Gulf Lubes Moving

HOUSTON, July 8.—Summer motoring demand has brought domestic jobbers into the Gulf Coastal lubricant market for increased takings of various grades. Manufacturers report steady movements in tank cars. Purchase by an Atlantic seaboard company of accumulated stocks of lubricants from Gulf Coastal manufacturers has cleared up the excess previously held of some grades. A result has been the stiffening of the market without change in prices above the higher levels announced about the middle of June.

Now Ready for Service Stations,

Auto Dealers and Garages

Car-life
REGISTERED
Service

Simple, inexpensive and so appealing to car drivers that in actual operation it

DOUBLES THE SALES OF LUBRICANTS

We can refer you to Car-Life users who service 30 to 40 cars daily. These are not "transients"—but *regular customers* who return each 500 miles for lubricating service.

NO NEW EQUIPMENT TO BUY—USE ANY LUBRICANTS YOU WISH

Car-Life is merely a service plan, requiring only a few printed supplies. It carries no restrictions as to lubricants or equipment.

Car-Life Lubrication was perfected with the aid of some of the largest oil companies in America.

It is as adaptable to the small station or garage as to the largest "super" station.

Full particulars and proof free for the asking

COREY & McKENZIE CO.
Omaha, Nebr.

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect July 8

	Price F.O.B. Group 3		*Price F.O.B. Point of Origin*		*If for Particular Destination*
Oklahoma	9.0353	(Wt. Avg.)	9.0353	(Wt. Avg.)	
Kansas	8.75-9.25				S. O. Neb. & Ind. Ter., etc.
Kansas			9.5150	(Wt. Avg.)	Kansas only.
North Texas	8.25-8.75		8.125-8.50		
West Texas	8.125-8.50		8.00-8.50		
Louisiana-Ark.	8.50-9.00				Mich., Ohio & Indiana.
Louisiana-Ark.			9.00		State or differential haul.
Indiana-Illinois	9.00		*		S. O. Ind. territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Weighted Average Prices

OKLAHOMA

	July 8		July 1		June 24	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of cars**	**Price**
58-60 U. S. Motor, 437 e. p.	85	9.0353	81	9.2222	78	9.1859
60-62 437 e. p. gasoline	2	9.3125	No sales reported		3	9.4167
60-62 400 e. p. gasoline	2	9.3750	2	9.2500	1	9.5000
64-66 375 e. p. gasoline	No sales reported		1	9.7500	No sales reported	

The relatively small volume of gasoline moving out of Oklahoma as shown in the above figures is accounted for largely by competition from other areas, although exceptionally quiet spot demand in the entire Mid-Continent accounts for it in a measure.

The steadiness of the weighted averages more or less verifies the reported reluctance of Oklahoma refiners to meet the outside competition.

KANSAS

	July 8		July 1		June 24	
	No. of cars	**Price**	**No. of cars**	**Price**	**No. of cars**	**Price**
58-60 U. S. Motor, 437 e. p.	25	9.5150	49	9.4974	16	9.4844

For shipment within the State, Kansas refiners continued to maintain the usual differential over Group 3 as evidenced by the above weighted average prices. Some deviations from the 9.50 cent price were brought about by efforts to get immediate shipping instructions.

GASOLINE AND NAPHTHA

OKLAHOMA	Prices July 8	Prices July 1	Prices June 24
48-50 450 e.p. naphtha	8.625- 9.00	8.75 - 9.00	8.75 - 9.00
50-52 450 e.p. naphtha	8.625- 9.00	8.75 - 9.00	8.75 - 9.00
56-58 450 e.p. gasoline	8.375- 8.75	8.50 - 8.75	8.75
58-60 450 e.p. gasoline	8.50 - 8.875	8.625- 8.875	8.875
64-66 390 e.p. gasoline	9.25 - 9.50	9.50	9.625
68-70 350-360 e.p. gasoline	9.625-10.00	9.625-10.00	9.875-10.00

†Prices nominal ††Only one refiner quoting *Quotations only

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

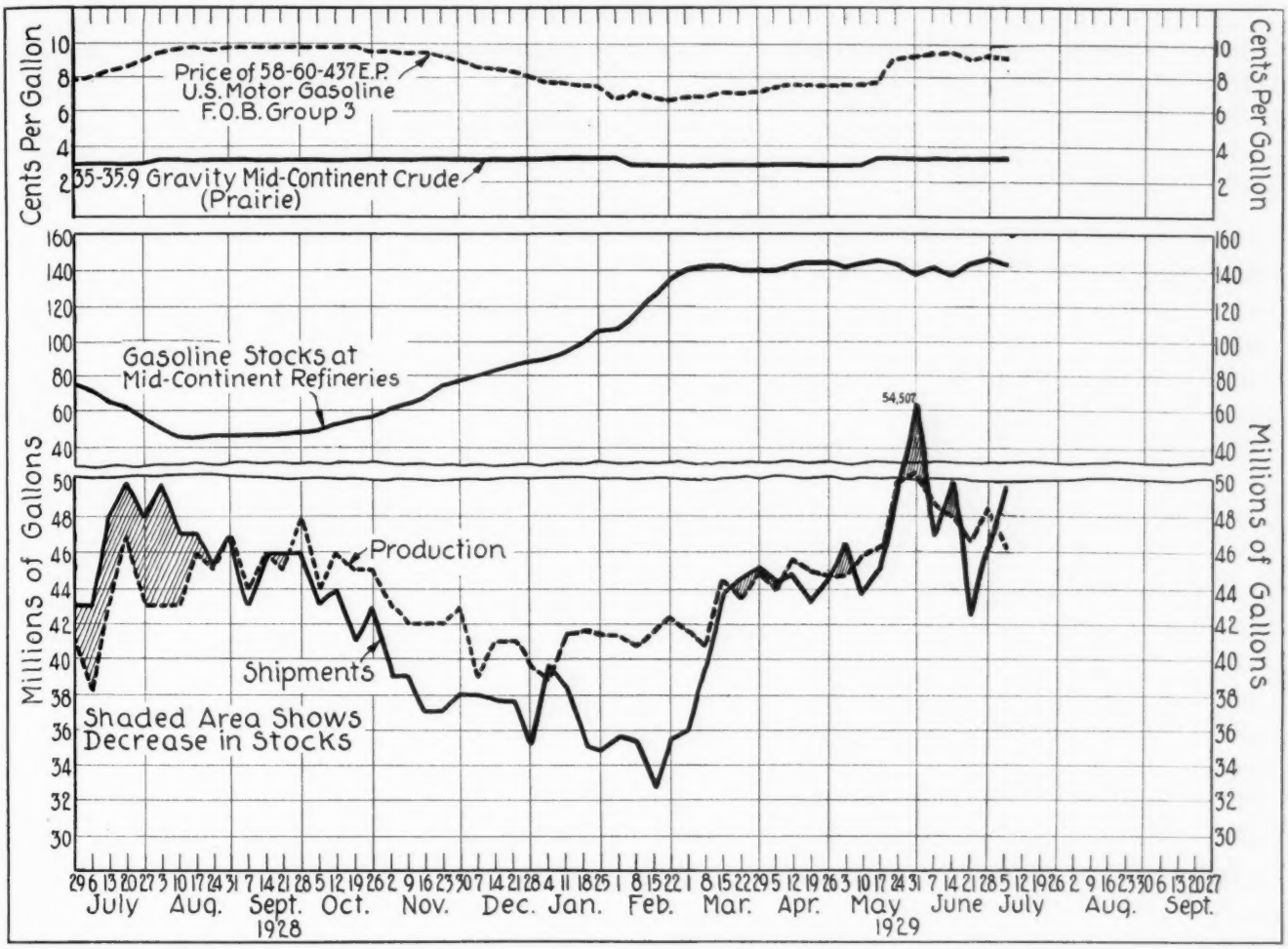
	Prices July 8	Prices July 1	Prices June 24
58-60 U. S. Motor, 437 e.p.	8.125- 9.00	8.25 - 9.25	8.50 - 9.25
60-62 437 e.p. gasoline	8.50 - 9.375	8.625- 9.375	8.75 - 9.375
60-62 400 e.p. gasoline	8.75 - 9.50	8.875- 9.50	9.00 - 9.50
64-66 375 e.p. gasoline	9.125- 9.75	9.125- 9.75	9.50 - 9.75

(Continued on Page 122)

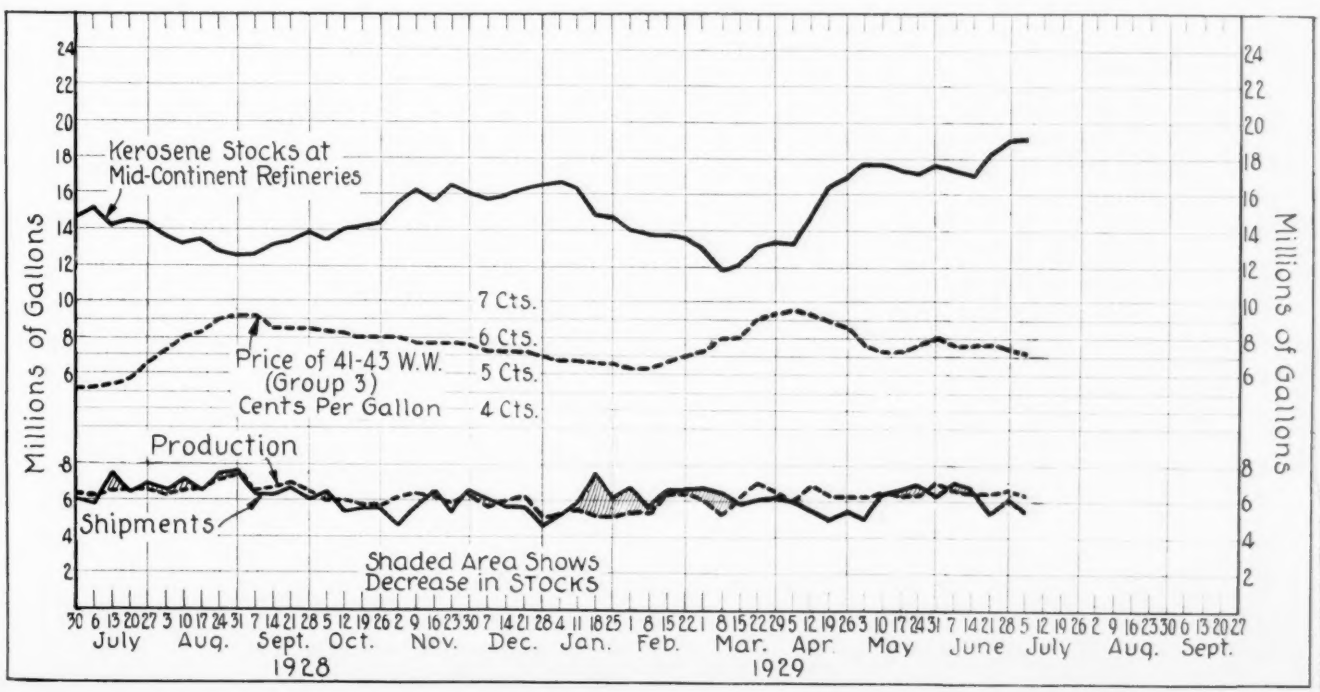
**Represents Both Sales and Quotations.

Barometer of Mid-Continent Refinery Market—Week Ending July 5

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, from Reports Made by 93 Plants to National Petroleum News


Cents Per Gallon
Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Gasoline Stocks at Mid-Continent Refineries
54,507
Millions of Gallons
Production
Shipments
Shaded Area Shows Decrease in Stocks
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1928
1929

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 114.



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

PENNSYLVANIA

	Prices July 8	Prices July 1	Prices June 24
52-54 Naphtha	9.50 –10.00	9.50 –10.00	9.50 –10.00
54-56 Naphtha	9.50 –10.25	9.50 –10.25	9.50 –10.25
58-60 U.S. Motor 437 e.p.	10.25 –10.75	10.25 –10.75	10.25 –10.75
60-62 400-410 e.p. gasoline	10.50 –11.00	10.50 –11.00	10.50 –11.00
64-66 390 e.p. gasoline	10.75 –11.50	10.75 –11.50	10.75 –11.50
68-70 Str-run gas 350-360 e.p.	11.50 –12.50	11.50 –12.50	11.50 –12.50

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline			
Ohio, delivery at any point	12.00	12.00	12.00

KANSAS (F. O. B. refinery Kansas destination)

60-62 400 e.p. gasoline	9.50 – 9.875	9.75 –10.00	9.75 –10.25
64-66 375 e.p. gasoline	9.75 –10.00	10.00 –10.25	10.00 –10.375

NORTH TEXAS

48-52 450 e.p. naptha	8.125– 8.375	8.25 – 8.50	8.375– 8.50
56-58 450 e.p. gasoline	8.00 – 8.375	8.25 – 8.50	8.375– 8.50
58-60 450 e.p. gasoline	8.00 – 8.375	8.25 – 8.50	8.375– 8.50
58-60 U.S. Motor 437 e.p.	8.125– 8.50	8.25 – 8.75	8.50 – 8.75
60-62 400 e.p. gasoline	8.50 – 9.00	9.00 – 9.125	9.25 – 9.375
64-66 390 e.p. gasoline	8.75 – 9.25	9.00 – 9.375	9.50
64-66 375 e.p. gasoline	8.875– 9.375	9.375– 9.50	9.50 – 9.625
68-70 350-360 e.p. gasoline	9.25 – 9.75	9.50 – 9.75	9.625– 9.75

****WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)**

50-52 naphtha	7.75 – 8.00	8.00	8.00
56-58 437 e.p. gasoline	8.00 – 8.25	8.00 – 8.375	8.50
58-60 437 e.p. gasoline	8.00 – 8.50	8.375– 8.75	8.50 – 8.625

NORTH LOUISIANA (N. La., Ark., and Miss. destination)

58-60 U.S. Motor, 437 e.p.	9.00	9.50	9.50

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	9.00	9.50	9.25 – 9.50
61-63 390 e.p. gasoline	....	9.625	9.625

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	8.00 –10.25	8.00 –10.00	8.00 –10.50
58-61 375-400 e.p. gasoline	9.00 –11.25	9.00 –11.00	9.00 –11.00
42-45 Engine Distillate 445-480 e.p.	7.50 – 8.50	7.00 – 8.50	7.00 – 8.50

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA

Grade AA, 80-87.9, 90% Recovery	7.00 – 7.25	7.25 – 7.375	7.375– 7.50
Grade A, 72-79.9, 90% Recovery	7.00 – 7.25	7.25 – 7.375	7.375– 7.50
Grade BB, 84-92, 85% Recovery	*6.25 – 6.375	6.25	6.625– 6.75
Grade B, 76-83.9, 85% Recovery	*6.25 – 6.375	6.25	6.625– 6.75
Grade C, 80-90, 78% Recovery	*6.25 – 6.375	6.25	6.625– 6.75

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery	7.00 – 7.25	7.25 – 7.375	7.375– 7.50
Grade A, 72-79.9, 90% Recovery	7.00 – 7.25	7.25 – 7.375	7.375– 7.50
Grade BB, 84-92, 85% Recovery	*6.25 – 6.375	6.25	6.625– 6.75
Grade B, 76-83.9, 85% Recovery	*6.25 – 6.375	6.25	6.625– 6.75
Grade C, 80-90, 78% Recovery	*6.25 – 6.375	6.25	6.625– 6.75

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA	†7.50	†7.50	†7.75
Grade BB	†6.625	†6.50	†7.00
Grade C	†6.625	†6.50	†7.00

CALIFORNIA

75-85, 375-390 e.p. blend	8.75 – 9.50	8.50 – 9.00	9.00 – 9.50

BURNING OILS

PENNSYLVANIA

	Prices July 8	Prices July 1	Prices June 24
45 w.w. kerosene	6.25 – 6.75	6.375– 6.75	6.625– 6.875
46 w.w. kerosene	6.50 – 7.00	6.75 – 7.00	6.875– 7.25
47 w.w. kerosene	7.00 – 7.50	7.125– 7.50	7.25 – 7.50
300 mineral seal	7.25 – 7.75	7.50 – 7.75	7.50 – 7.75

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

41-43 w.w. kerosene	5.50 – 5.75	5.50 – 5.75	5.625– 5.875

OKLAHOMA

41-43 w.w. kerosene	5.50 – 5.75	5.625– 5.875	5.75 – 6.00
42-44 w.w. kerosene	6.125– 6.25	6.25 – 6.375	6.25 – 6.50

KANSAS (F. O. B. refinery Kansas destination)

41-43 w.w. kerosene	6.125– 6.50	6.25 – 6.50	6.25 – 6.50
42-44 w.w. kerosene	6.50 – 6.75	6.75	6.625– 6.75

NORTH TEXAS

40-42 w.w. kerosene	5.25	5.375	5.375
41-43 w.w. kerosene	5.25 – 5.50	5.375– 5.50	5.50

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene	6.125– 6.50	6.25 – 6.50	6.25 – 6.50
42-44 w.w. kerosene	6.625– 6.75	6.75	.....

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 kerosene	6.125– 6.50	6.25 – 6.50	6.25 – 6.50
42-44 kerosene	6.625– 6.75	6.75	6.75

CALIFORNIA

38-40 w.w. kerosene	5.50 – 6.25	5.50 – 6.50	5.50 – 6.50

NEUTRAL OIL

PENNSYLVANIA

Vis.	(Viscosity at 70°F.)		
200 No. 3 Assoc. Filt.	28.00 –29.50	28.00 –29.50	28.50 –29.50
180 No. 3 Assoc. Filt.	24.00 –26.00	25.00 –27.00	25.00 –27.00
150 No. 3 Assoc. Filt.	20.00 –21.50	20.50 –21.50	21.00 –21.50
	(Non Viscous)		
34 Grav. 330-340 Flash	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

****OKLAHOMA**

Vis. Color	(Viscosity at 100°F.)		
100—No. 2	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
150—No. 3	7.50 – 8.25	7.50 – 8.25	7.50 – 8.25
150—No. 4	6.75 – 7.50	6.75 – 7.50	6.75 – 7.50
180—No. 3	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
180—No. 4	8.75 – 9.25	8.75 – 9.25	8.75 – 9.25
180—No. 5	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
200—No. 3	9.50 –11.00	9.50 –11.00	9.50 –11.00
200—No. 4	9.00 –10.25	9.00 –10.25	9.00 –10.25
200—No. 5	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
220—No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220—No. 4	12.25 –12.50	12.25 –12.50	12.25 –12.50
220—No. 5	11.50 –12.00	11.50 –12.00	11.50 –12.00
240—No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
240—No. 4	12.00 –13.00	12.00 –13.00	12.00 –13.00
240—No. 5	11.00 –13.00	11.00 –13.00	11.00 –13.00
280—No. 3	14.00 –16.00	14.00 –16.00	14.00 –16.00
280—No. 4	13.00 –15.00	13.00 –15.00	13.00 –15.00
280—No. 5	12.00 –14.00	12.00 –14.00	12.00 –14.00
300—No. 5-6	16.00 –17.00	16.00 –17.00	16.00 –17.00

†Prices nominal ††Only one refiner quoting *Quotations only **Represents both sales and quotations.

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL

Vis.	Color	Prices July 8	Prices July 1	Prices June 24
		(Viscosity at 100°F., pour test 0)		
100	No. 2 Pale	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
200	No. 3 Pale	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
300	No. 3 Pale	10.50 –11.00	10.50 –11.00	10.50 –11.00
500	No. 3½ Pale	12.00 –12.50	12.00 –12.50	12.00 –12.50
750	No. 4 Pale	13.25 –13.75	13.25 –13.75	13.25 –13.75
200	No. 5½ Red Oil	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
300	No. 5½ Red Oil	9.75 –10.25	9.75 –10.25	9.75 –10.25
500	No. 6 Red Oil	11.00 –11.50	11.00 –11.50	11.00 –11.50
750	No. 6 Red Oil	12.00 –12.50	12.00 –12.50	12.00 –12.50

CALIFORNIA

Vis.	Color		(Viscosity at 100°F.)	
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

CYLINDER STOCKS

**OKLAHOMA

190-200D Vis. at 210° Brt. St.	37.00 –41.00	37.00 –41.00	37.00 –40.00
150-160D Vis. at 210° Brt. St.	36.00 –37.00	36.00 –37.00	35.00 –37.00
150-160E Vis. 210° Brt. St.	29.00 –33.00	29.00 –33.00	29.00 –33.00
600 St. Ref. Olive Green	14.00 –19.00	15.00 –20.00	15.00 –20.00
600 St. Ref. Dark Green	14.00 –16.00	13.50 –16.00	13.50 –16.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (A. S. T. M. Tests)

600 Steam Refined, filterable	28.00 –30.00	28.00 –31.00	30.00 –32.00
650 Steam Refined	35.00 –39.00	37.00 –39.00	37.50 –39.00
600 Flash	37.00 –43.00	41.00 –43.00	41.00 –43.00
625 Flash	39.00 –45.00	44.00 –45.00	44.00 –45.00
600 Warren E	36.50 –37.00	36.50 –37.00	36.50 –37.00
600 Oil City E	35.00 –36.00	35.50 –36.00	35.50 –36.00
600 D Filtered	38.50 –41.00	40.00 –41.00	40.00 –41.00
Cold Test Stock, 40-50p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	50.00 –54.00	53.00 –55.00	53.00 –55.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	49.00 –52.00	51.00 –52.00	51.00 –52.00

WAX

PENNSYLVANIA (Per pound, New York)

122-124 white crude scale, a. m. p.	2.625– 3.00	2.625– 2.875	2.75 – 2.875
124-126 white crude scale, a. m. p.	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00

OKLAHOMA

**124-126 White Crude Scale, a. m. p.	2.50 – 2.75	2.50 – 2.625	2.50

CALIFORNIA

White crude scale, per pound, ton lots, a. m. p.	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	4.375– 5.00	4.625– 5.00	4.75 – 5.00
30-34 fuel oil	4.25 – 4.50	4.375– 4.50	4.50 – 4.625
28-32 fuel oil	4.25 – 4.50	4.375– 4.50	4.50 – 4.625

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

	Prices July 8	Prices July 1	Prices June 24
38-40 straw distillate	3.25 – 3.50	3.25 – 3.50	3.25 – 3.50
32-36 ordinary dark gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 dark zero gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
32-36 straw zero gas oil	2.625– 2.875	2.625– 2.875	2.625– 2.875
28-30 zero fuel oil	$0.925–$0.95	$0.875–$0.95	$0.875–$0.95
28-30 fuel oil	$0.875–$0.90	$0.85 –$0.90	$0.85 –$0.90
24-26 fuel oil	$0.675–$0.725	$0.675–$0.725	$0.675–$0.725
18-22 fuel oil, low sulfur	$0.55 –$0.60	$0.55 –$0.60	$0.55 –$0.60
18-22 fuel oil, high sulfur	$0.50 –$0.55	$0.50	$0.50

OKLAHOMA

38-40 straw distillate	†3.375– 3.625	†3.25 – 3.50	†3.25 – 3.50
36-38 straw distillate	†3.125– 3.25	†3.125– 3.25	†3.125– 3.25
32-36 straw gas oil	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625
32-36 dark gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
32-36 straw zero gas oil	2.625– 2.75	2.625– 2.75	2.625– 2.75
28-30 zero fuel oil	$0.925– 0.95	$0.90 – 0.95	$0.90 – 0.95
28-30 fuel oil (in bbls.)	$0.875– 0.95	$0.875– 0.95	$0.875– 0.95
26-28 fuel oil (in bbls.)	$0.775– 0.85	$0.75 – 0.80	$0.75 – 0.775
24-26 fuel oil (in bbls.)	$0.70 – 0.80	$0.675– 0.75	$0.675– 0.75
22-26 fuel oil (in bbls.)	$0.60 – 0.65	$0.60 – 0.625	$0.60 – 0.625
18-22 fuel oil (in bbls.)	$0.525– 0.575	$0.50 – 0.55	$0.50 – 0.55
16-18 fuel oil (in bbls.)	$0.45 – 0.50	$0.45 – 0.50	$0.45 – 0.50
14-16 fuel oil (in bbls.)	$0.45 – 0.50	$0.45 – 0.50	$0.45 – 0.50

KANSAS (F. O. B. refinery Kansas destination)

38-40 straw distillate	3.375– 3.625	3.375– 3.625	3.375– 3.50
36-38 straw distillate	3.25 – 3.50	3.25 – 3.375	3.25 – 3.375
32-36 gas oil	2.50 – 2.75	2.50 – 2.75	2.50 – 2.75
24-26 fuel oil	$0.725– 0.775	$0.70 – 0.75	$0.70 – 0.75
18-22 fuel oil	$0.625– 0.70	$0.625– 0.70	$0.625– 0.70
10-14 fuel oil	$0.50 – 0.575	$0.50 – 0.575	$0.50 – 0.575

NORTH TEXAS

38-40 straw distillate	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375
32-36 gas oil, cracked	2.25 – 2.375	2.25 – 2.375	2.25 – 2.375
32-36 St. reduced gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
24-26 fuel oil (in bbls.)	$0.65 – 0.70	$0.625– 0.70	$0.625– 0.70
20-24 fuel oil	$0.65 – 0.70	$0.625– 0.70	$0.625– 0.70

**WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)

34-38 gas oil	2.375– 2.50	2.375– 2.50	2.375– 2.50
30-32 gas oil	2.00 – 2.25	2.25	2.125– 2.25
18-22 fuel oil	$0.40 – 0.45	$0.375– 0.45	$0.375– 0.45

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	2.50 – 2.75	2.625– 3.00	2.75 – 3.00
32-36 gas oil, straw	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
14-16 fuel oil (in bbls.)	$0.75 – 0.80	$0.75 – 0.80	$0.75 – 0.80

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	3.00	3.00	3.00
32-36 gas oil	3.00	3.00	3.00
28-30 gas oil	2.50 – 2.75	2.625– 2.75	2.75
14-16 fuel oil	$0.75 – 0.80	$0.75 – 0.80	$0.75 – 0.80

CALIFORNIA (F. o. b. San Joaquin Valley. At San Francisco, 4c per bbl. more)

14-18 fuel oil (per bbl.)	$0.55 –$0.65	$0.55 –$0.65	$0.55 –$0.65
14-18 Bunker oil (per bbl.)	$0.70 –$0.75	$0.65 –$0.75	$0.65 –$0.75
30-34 gas oil (per bbl.)	$1.05 –$1.10	$0.95 –$1.05	$0.95 –$1.05
27 Plus Diesel oil (per bbl.)	$0.95 –$1.00	$0.90 –$1.00	$0.90 –$1.00

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f. o. b. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

Snow White	8.375– 8.50	8.25 – 8.50	8.25 – 8.50
Lily White	7.375– 7.625	7.25 – 7.625	7.25 – 7.625
Cream White	6.375– 6.625	6.25 – 6.625	6.25 – 6.625
Light Amber	3.625	3.50 – 3.625	3.50 – 3.625
Amber	3.375	3.25 – 3.375	3.25 – 3.375
Red	3.125	3.00 – 3.125	3.00 – 3.125

PETROLEUM COKE

**OKLAHOMA

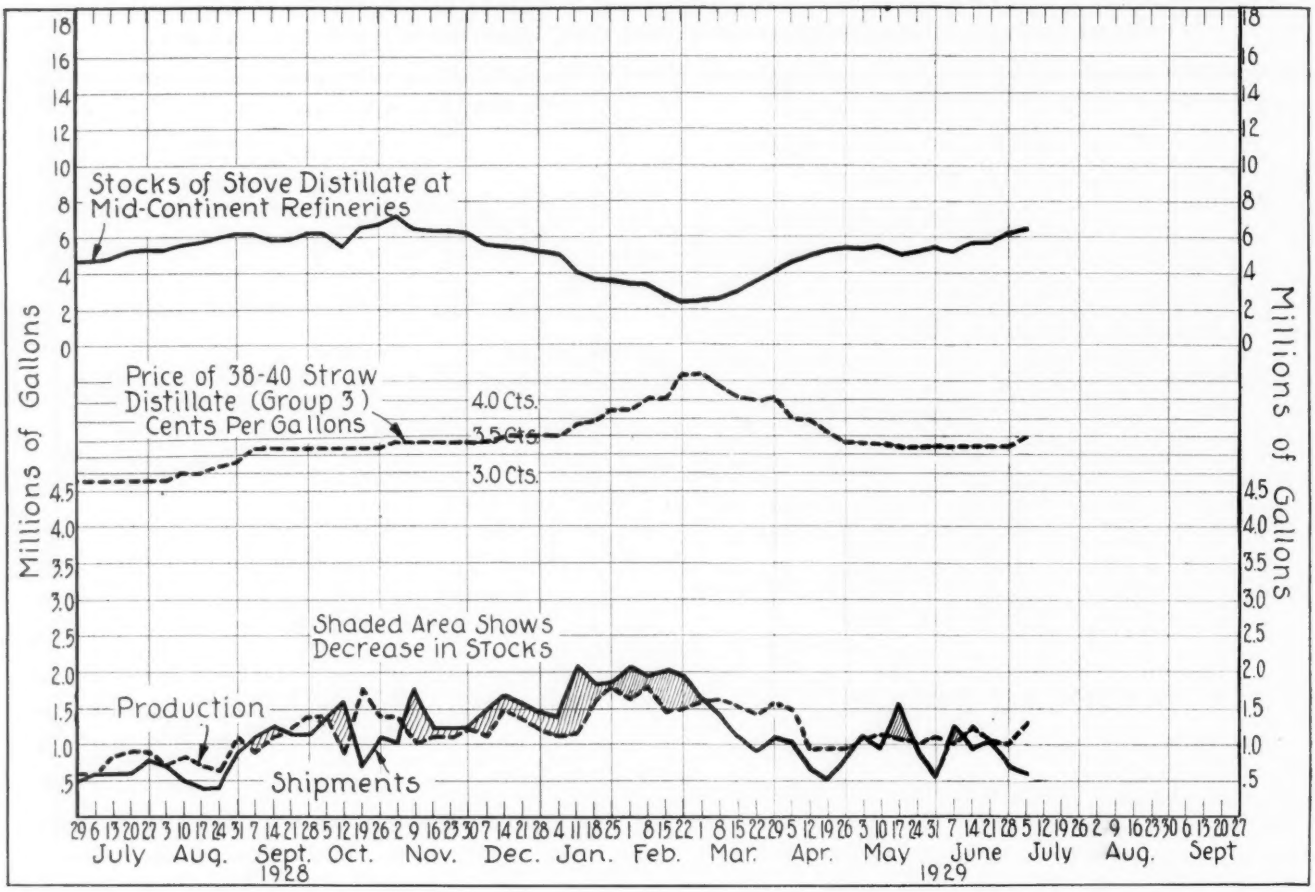
(Per ton in car lots)

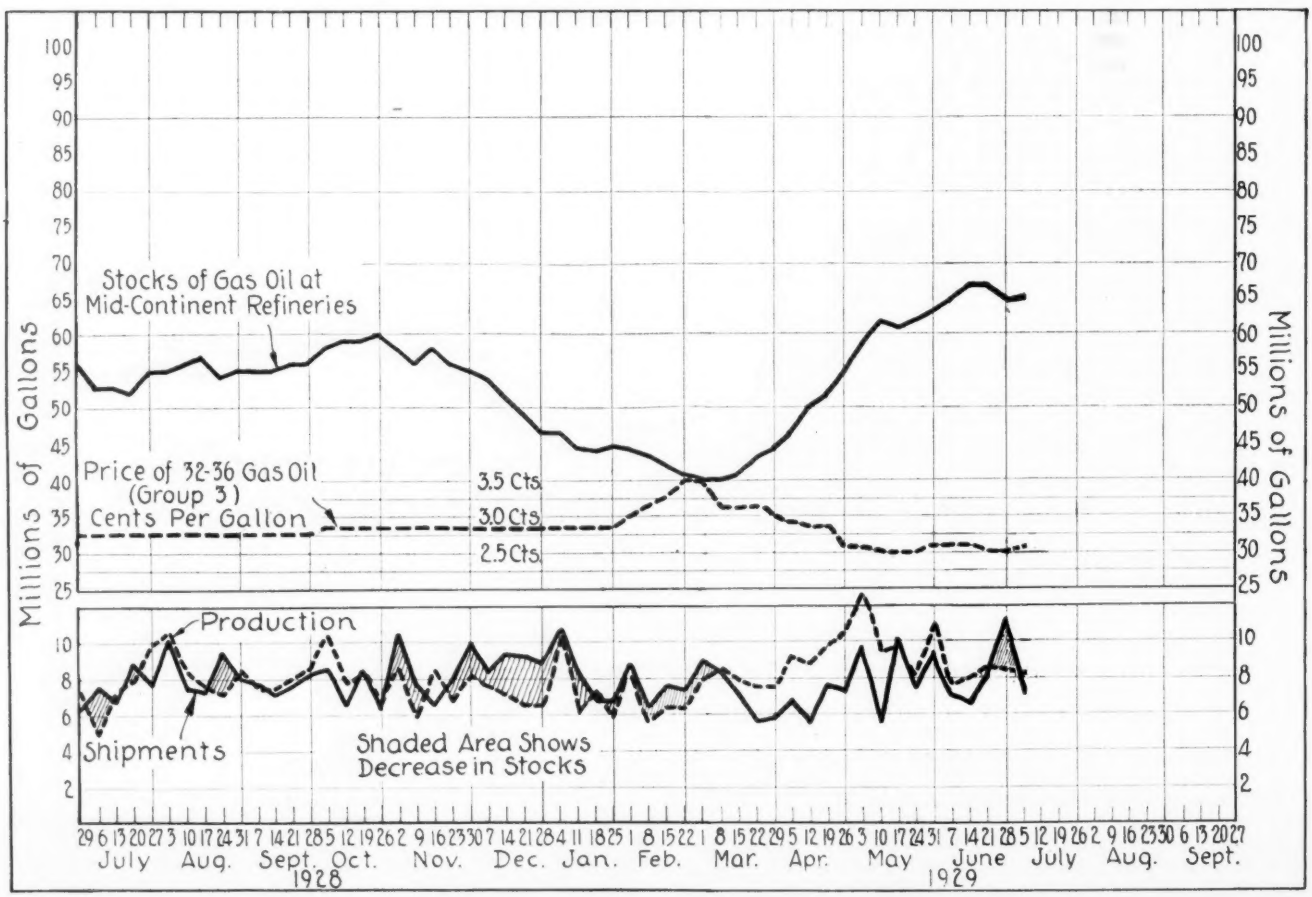
Lump	$4.50 –$5.00	$4.50 – 5.00	$4.50 – 5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

†Prices Nominal ††Only One Refiner Quoting *Quotations only **Represents both sales and quotations

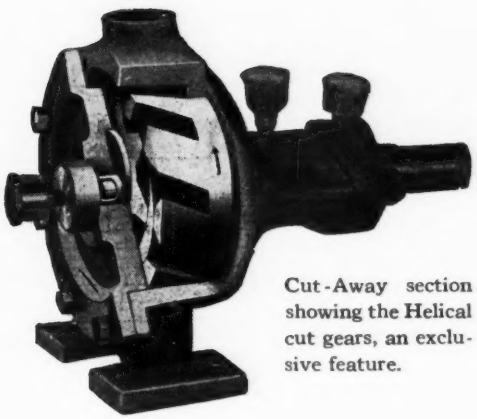
Barometer of Mid-Continent Refinery Market—Week Ending July 5

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, from Reports Made by 93 Plants to National Petroleum News


Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallons
4.0 Cts.
3.5 Cts.
3.0 Cts.
Shaded Area Shows Decrease in Stocks
Production
Shipments
Millions of Gallons
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept
1928
1929


Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Millions of Gallons
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1928
1929

Pumps with Helical Cut Gears Run More Smoothly —And Last Longer



Cut-Away section showing the Helical cut gears, an exclusive feature.

IT is very generally accepted that a rotary pump is preferable to a reciprocating pump for transferring large quantities of liquids at low power cost. In a reciprocating (piston type) pump it takes extra power to start the load at the beginning of each piston stroke. In a rotary pump when the liquid is started it is carried around a part of a circle. There is no stopping and starting but an even continuous flow. It is easy to understand why it takes less power and every mechanic understands, too, that a non-fluctuating load saves the motor.

The Perfection is the only rotary pump in which the Helical gear principle is embodied. The pump mechanism is extremely simple, with only two moving parts, the helical internal gear rotor and the helical idler gear or pinion. The teeth in the idler pinion intermeshing with the teeth in the rotor act like a series of pistons in rotating cylinders, sucking the liquid in the intake opening on the side, carrying it around and discharging it through the outlet at the top. (See cut-away illustration).

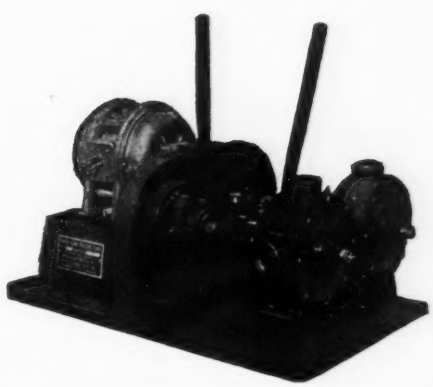
THE Helical shape of the gears prevents back lash and is preferable to the spur gear because it runs more quietly and smoothly. With helical gears there is not the shocking action and strain on the pump that is produced by the straight-on mesh of spur gears. The teeth of the Rotor in the Perfection Pump cut through the liquid on an angle with a shearing cut instead of head on.

The Perfection Rotary Pump is made in sizes from 3 to 90 gallons per minute. It is ideal for unloading oil or gas. Replace your old unloading pump with a Perfection. It will save you time, money and power, and will give you satisfactory service.

Write for Bulletin No. 271 and prices. The Perfection Rotary Pump has some special features that are well worth looking into.

Perfection Manufacturing Company

2194 East Hennepin Avenue,
Minneapolis, Minn.

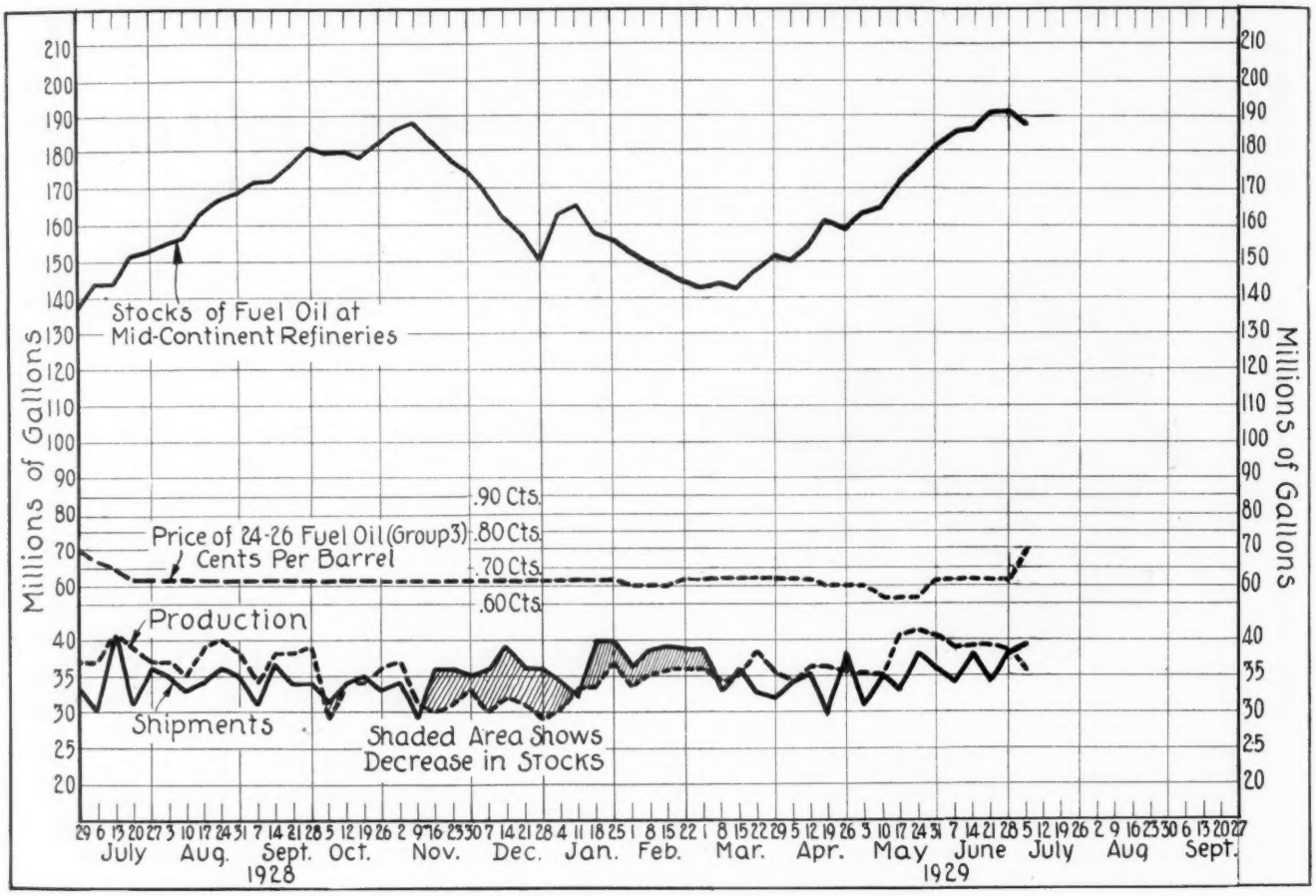


Type 6—A Twin Gear Drive unloading Pump with Motor.

PERFECTION
ROTARY PUMPS

Barometer of Mid-Continent Refinery Market—Week Ending July 5

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, from Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Millions of Gallons
Stocks of Fuel Oil at Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3) Cents Per Barrel
.90 Cts.
.80 Cts.
.70 Cts.
.60 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug Sept.
1928
1929

California Refinery Market

Export and Coastwise Sales Slow

LOS ANGELES, July 5

POSSIBILITY of brisk business in the near future between Pacific Coast sellers and Atlantic Coast buyers of California petroleum products is considered very slim as reports from various shipping firms show that there are no tankers available for July or August shipments and only one or two remain uncharted for September sales.

Dirty tankers were being quoted at 35 cents for the single trip, with a number taken at 30 cents for consecutive voyages until March. Other tankers have been leased until February.

One company reported that two ships had been cleaned up for intercoastal trade and would be released for 90 cents per barrel, although the prevailing price is $1 to $1.10. The last rate reported for clean tankers was $1.07. Boats for coastwise trade were 40 cents per barrel.

One broker reported that he considered that the peak of the season is passing and that it would pay local refiners to sell their goods at the price now quoted, rather than hold out with the hope of higher returns later on.

While there is no shortage of storage, several shippers are showing considerable anxiety over the dearth of spot sales to either Atlantic or foreign buyers. Whereas recently many refiners quoted 7.50 cents and a few asked 7 cents, the situation has so changed that now the majority would sell at the lower figure, and a few might shade it to 6.75 cents without much pressing.

Trade picked up in the refinery market in some products and promising inquiries were reported all along the line.

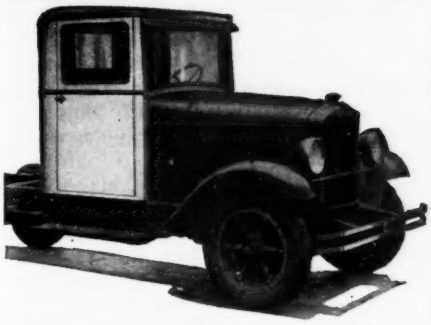
U. S. Motor was being quoted at from 8 to 8.50 cents for out of state use, with a possibility that some distress goods could be bought at 7.75 cents. In-state gasoline was going at from 9.75 to 10.25 cents, with a number of spot sales reported.

Major companies continued to carry a prohibitive price of about 9.50 cents on engine distillate and small Independents were cutting their 445-580 end point goods into 437 end point gasoline.

Fuel oils were still the high spots in the refinery market, as far as reported spot sales went, although they were not as firm as last week. One Independent stated that some of this commodity had been sold at 52.50 cents and some even lower.

Natural gasoline was rather inactive, some moving at 8.75 and 9 cents, and a number of brokers stated that they thought it could be purchased as low as 8.625 cents.

Retail conditions remained unaltered, although southern California marketers stated that they were worried over the increased loss of gallonage to small Independents, who have



A smart cab for smart trucks

This is the day of smartness . . . in trucks as well as clothes. Make your trucks smarter looking with the new Highland C.O. 55 Cab. Notice its clean cut lines, military front, and well rounded corners extending up into the roof. All exterior surfaces are metal covered—no wood is exposed.

This cab embodies the rugged strength and sound construction that exacting service and economical operation require. Like all Highland Cabs it has the Highland Rocker Sill Mounting, an original Highland feature.

Made in three sizes to fit all trucks and is standard equipment on most of the well known makes. Specify the Highland C.O. 55 in your truck contract and get a custom built job at a production price. See it at the Highland Distributor near you.

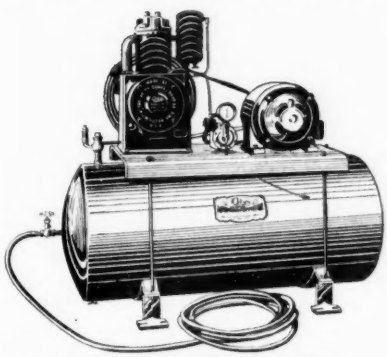
The Highland Body Manufacturing Co.
430 Elmwood Place Cincinnati, Ohio

HIGHLAND FOR CABS

Twenty years of compressor building behind

The Oro T 58
GOOD as GOLD

ALL-PURPOSE UNIT



A BIG OPPORTUNITY

If you need more air, and of course you do, here's a "buy" you should not overlook. A 2 H.P. unit with a 60-gallon tank at the price of a ¾ H.P. two-stage unit.

Will do your tire inflating and Paint Spray work; will operate one hydraulic hoist or your air operated gasoline pumps. Costs no more to operate than many smaller units.

Ask your jobber to sell you for **$215**

If your jobber does not carry, ask us.

THE AU-TO COMPRESSOR CO.
197 Mulberry St. Wilmington, Ohio
Export office, 126 Liberty St., New York City

resisted all attempts to stabilize the local service-station price at 19.50 cents.

That marketing conditions in San Francisco are not very satisfactory is indicated by the fact that the General Petroleum Corp. has filed suit in the federal court seeking to enjoin other gasoline-producing companies from soliciting the business of agencies that handle General Petroleum products.

Major companies are making an attempt to do away with the official service-station price by changing contracts that are based on this price to contracts that are based on the tankwagon or wholesale price. Many of the companies who maintain service stations did not advance their official service-station price on June 19, when the tankwagon price was increased. This was because they have contracts that read 7 cents below the official service-station price, which places it at 15.50 cents in southern California, or at the same price at which other resellers are buying gasoline.

Pennsylvania Market

Motor Oil Active

CLEVELAND, July 8.—Western Pennsylvania refiners joined with other refining districts throughout the country in proclaiming a dull demand for gasoline following July 4.

Most commodities in Pennsylvania were not in active demand last week. Motor oils were in good demand, and in some districts gasoline was reported as fairly active.

One refiner reported his tank car and tank wagon business was excellent, and that he was establishing new records. On the other hand another seller reported he was still shipping gasoline booked for June delivery.

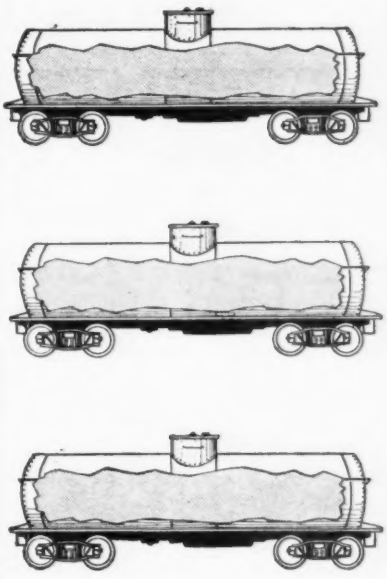
Light oil prices were unchanged generally. U. S. Motor gasoline was quoted at 10.25 cents bottom.

Cylinder stock prices have fallen off again. Bright stocks have maintained an even price except for some low priced goods reported today.

Wax was unchanged in demand and price.

RICHMOND, Va., July 8.—Collections from the 5-cent gasoline tax for May amounted to $916,563.05, of which $474.98 consisted of penalties, it has been announced by James M. Hayes, Jr., director of the state division of motor vehicles.

The state retains 3½ cents of each 5 cents collected, while the counties get 1½ cents.



EVERY CARLOAD COLORED ALIKE

Uniformity is easy with

DYKEM GASOLINE COLORS

Several Shades of
RED BLUE
GREEN PURPLE
ORANGE

Samples of shades you prefer and prices gladly submitted.

DYESTUFFS & CHEMICALS, INCORPORATED.
11th and Monroe Sts.,
ST. LOUIS, MO.

New York Domestic Market

Not Meeting S. O. New Jersey Increase

Staff Special
NEW YORK, July 6

TEN cents was the general gasoline quotation at all points on the Eastern seaboard during the past week, although three sellers were asking higher prices. Opinions varied as to the condition of the market but it was generally stated that spot business was slow.

The Standard Oil Co. of New Jersey, announced an advance of 1 cent per gallon in its gasoline price more than a week ago, which makes its quotation 11 cents. Two other companies have announced a similar advance, one of them for U. S. Motor and the other for both U. S. Motor and California gasoline. Other companies refuse to raise prices some of them believing that the market does not warrant it. None of the companies which have made the raise have made any sales as yet at the new figure for spot shipment.

New England gasoline was unchanged although one company has raised its price at Providence, to 11.50 cents delivered. This company has a freight rate of 0.92 cents into Providence which makes the f.o.b. terminal price about 10.50 cents. The majority of quotations both there and at Boston were 10.50 to 11 cents delivered. Orders for spot shipment into the New England districts were few, sellers said.

While the Standard is sticking to its price of 11 cents, two sellers at New York have reported that 10 cents has been shaded. One of them quoted 9.875 cents on some business to Elmira, N. Y. and lost the business to another company which, he said, quoted 9.625 cents. The order was small however, and no doubt had some effect on the shipper determining his price.

Virtually all sellers have received inquiries for shipment over July, but, as a rule, no quotations are being made. One or two companies have quoted 11 cents over the month but one said that business for spot shipment would be accepted at 10 cents. Another seller is quoting 10 cents for shipment over the month and is asking the same price for spot. One seller said he had been able to sell a small order at 10.25 cents and another is asking 10.50 cents although he said he would take business at 10 cents.

The same things are true of California gasoline. One seller is asking 11 cents both for spot and over the month. Another stated that he had sold most of his goods over July at 10 cents and would try to "get the market" for the remainder. By that he meant that he would do what the other sellers did in raising or lowering his price. Another company is quoting 10 cents and is making no contracts for over the month.

The rate of chartering clean boats will probably have some effect on the California gasoline price, one seller believed. At present the rates are going higher and those interested in moving gasoline coastwise see no decline before the end of August when demand slackens. One seller of California gasoline said that he had tried to charter a boat for August offering $1.03 but was unable to close the deal. The owner would consider nothing less than $1.07, the low price in the present range of tanker rates. For prompt chartering this same dealer tried to obtain a boat at $1.10 which is the high range in present prices, but was unable to secure one from several sources. For two days the past week this company has been almost without gasoline, due to its inability to obtain enough boats to fill its storage. For that reason it has not had to push sales and has taken care of only its regular customers.

Kerosene in the eastern markets has been without activity. Goods has been freely offered at 7.75 cents at New York and Philadelphia with some sellers still quoting 8 cents. At Baltimore quotations are being made at 8 to 8.25 cents. One company there has been brokering some Pennsylvania kerosene, buying it around 6 cents which, with a 1.82-cent freight rate, enables the company to sell it at a profit in the 8 to 8.25-cent range.

Gulf Export Market

Three Inquiries From French Accounts

Staff Special
July 6

INQUIRIES from three French accounts furnished the activity in the Gulf market the first week in July. Two were for gasoline and details on the third could not be learned. None of the inquiries was placed, all being open July 6.

The first buyer came into the market July 3 for a part cargo, about 3000 barrels, of 64-66, 375 e.p. gasoline for prompt shipment. At that time it was reported that two other French buyers were seeking cargoes but the amounts, dates, etc., could not be learned. Later it became known that the second buyer was seeking a cargo similar to the first for shipment some time in July.

The third purchaser was said to be inquiring for a part cargo of "mixed" gasoline. The two inquiries were from European subsidiaries of American refiners, and the business was expected to be closed early the coming week. Export association prices would govern the transactions.

Prices on all commodities the past week, those established by the export association and others, were unchanged. Reports are that the association is still considering an advance in prices although the trade feels that it will be some time yet before an advance is announced.

Prices of cased gasoline which moved up a week ago were still in effect and one seller indicated that he probably would raise his prices. Another said that his quotations depended on the size of the order. He was quoting $1.85 for U. S. Motor and $2.00 for 64-66, 375 e.p. gasoline, but indicated he might ask more for a small order or shade the price a trifle on a large one.

Heavy oils have been moving only fairly well but prices were maintained. Gas oil is quoted at 4 cents as the low price and there have been no indications of willingness to shade. Some high sulfur goods has been offered slightly lower than 4 cents.

The domestic market at the Gulf passed a quiet week and prices for U. S. Motor were lower. Sellers' opinions of the price was 8.50 to 8.75 cents. An unconfirmed report had it that a cargo was sold at 9 cents delivered to the terminal at Bayonne. That would mean a netback of about 8 cents at the Gulf, at the present rate of coastwise boats.

Wax Market

Quotations Unchanged

NEW YORK, July 6.—Quotations were virtually unchanged the past week and the market was generally reported slow. The only change was on 123-125 A.m.p. fully refined goods, which was being quoted at 3.875 cents. A week ago the price ranged upward from 3.875 to 4.125 cents.

Some inquiries were received during the week but only a few resulted in sales. One sale was reported at New Orleans of approximately 100 tons of white crude scale at 2.625 cents per pound. This sale could not be checked. Sellers were generally quoting 2.75 cents for that grade although it was believed that 2.625 cents might be done. There was another sale which couldn't be checked; 200 tons of 125-127 A.m.p. was reported to have sold early in the week for export at 3.90 cents per pound.

One seller believed he could get 2.875 cents, or more for white crude scale. He felt that the market was "looking up." He turned down an offer of 2.875 cents for 300 tons of white crude scale to be shipped over July and August to England. Another seller refused to accept a contract for 100 tons per month up to the first of the year at 2.72 cents f.a.s. New Orleans. This offer also came from an English buyer. On that kind of business another seller was quoting 3.50 cents.

Yellow crude scale has been seen slower than other grades. No sales have been reported nor have there been any inquiries received. The asking price was 2.625 cents although one or two sellers indicated that price might be shaded.

An insight into the wax situation for the past several weeks can be taken from the Bureau of Mines report for May. Production decreased approximately 4,000,000 pounds showing that refiners are cutting down their runs to avoid making greater sacrifices in price. That demand has fallen off is evidenced by the fact that stocks increased approximately 9,000,000 pounds. Those figures are expected to hold fairly steady until the demand is resumed later in the summer, probably in September, the seasonal time for foreign buyers to purchase their requirements.

MINNEAPOLIS, July 8.—Perry C. Sanborn, secretary of the John Hancock Oil Co. here, resigned from that company effective July 15. He has also resigned as head of the Minnesota Petroleum Association (now the Northwest Petroleum Association), and the Twin City Petroleum Club.

Skilled Supervision
Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
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NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York. Boston, Philadelphia, Louisville, Atlanta, Houston. New Orleans

STORAGE TANKS, FIELD-BUILT
Guarantee Thickness Material

BROWN TANKS ARE OIL-TIGHT
Double Electric Welded

Send us your inquiry

BROWN SHEET IRON & STEEL CO.
St. Paul Minnesota

Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

U. S. MOTOR GASOLINE	July 8	July 1	June 24
New York harbor	10.00	10.00	10.00
Portland district	**11.50–11.75	**11.50–11.75	*12.25
Boston district	**10.50–11.00	**10.50–11.00	*11.75
Providence district	**10.50–11.00	**10.50–11.00	*11.75
Philadelphia district	10.00	10.00	10.00
Baltimore district	10.00	10.00	10.00
Norfolk district	10.00	10.00	10.00
Charleston district	10.00	10.00	10.00
Savannah district	10.00	10.00	10.00
Jacksonville district	10.00	10.00	10.00
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	10.00 –10.50	10.00 –10.50	10.00 –10.50
Philadelphia district	10.00	10.00	10.00
Baltimore district	10.00	10.00	10.00
WATER WHITE KEROSENE			
New York harbor	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
Philadelphia district	7.75 – 8.00	7.75 – 8.00	7.75 – 8.00
Baltimore district	8.00 – 8.25	8.00 – 8.25	8.00 – 8.50
GAS OIL: 28-34 Gravity			
New York harbor	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
Boston district	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
Boston district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
GRADE C BUNKER OIL†			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10
MEDICINAL OILS, RUSSIAN			
885-890 s.g. 325-330 vis.	$0.75 – 0.80	$0.75 – 0.80	$0.75 – 0.80
870-875 s.g. 150-155 vis.	$0.65 – 0.70	$0.65 – 0.70	$0.65 – 0.70

Note: Above gasoline prices do not include inspection tax levied in some states

*Minimum delivered. **Delivered prices. †Lighterage 5c per bbl. additional

New York Export Market

(Lubricating oils are per gal. in bbls.)

	July 8	July 1	June 24
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	57.00 –59.00	57.00 –59.00	58.00 –60.00
600 D filtered	47.00 –49.00	47.00 –49.00	47.00 –49.00
600 Warren E filtered	44.00 –45.00	44.00 –45.00	45.00 –46.00
600 s.r. unfiltered	37.50 –40.00	38.00 –40.00	40.00 –41.00
650 s.r., unfiltered	45.00 –46.00	45.00 –46.00	46.00 –48.00
600 flash, s.r.	47.00 –48.00	47.00 –48.00	48.00 –50.00
630 flash, s.r.	52.00 –54.00	52.00	51.00 –52.00
*Nominal			
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	18.00 –20.00	18.00 –20.00	18.00 –20.00
200 vis. No. 6 color	16.00 –18.00	16.00 –18.00	16.00 –18.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	23.50	23.50	23.50
180 vis. No. 3¼ color	18.50 –20.50	18.50 –20.50	18.50 –20.50
100 vis. No. 2¼ color	16.00 –17.00	16.00 –17.00	16.00 –17.00
MOTOR OILS (Vis. 100°)			
600 vis. No. 7 color	33.00	33.00	33.00
500 vis. No. 6½ color	31.00	31.00	31.00
400 vis. No. 7¼ color	30.00	30.00	30.00
300 vis. No. 6 color	25.00 –27.00	25.00 –27.00	25.00 –27.00
200 vis. No. 6 color	24.00	24.00	24.00
MEDICINAL OILS			
875-885 s.g.	$0.80	$0.80	$0.80
865-870 s.g.	$0.70	$0.70	$0.70
WAXES (In cents per pound, f.a.s. carload lots)			
WHITE CRUDE SCALE (In barrels)			
122-124 A.m.p.	2.75	2.75	2.75 – 2.875
124-126 A.m.p.	2.75	2.75	2.75 – 2.875
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	3.875	3.875– 4.125	3.875– 4.125
125-127 A.m.p.	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125
128-130 A.m.p.	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
130-132 A.m.p.	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
133-135 A.m.p.	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
135-137 A.m.p.	6.50	6.50	6.50
YELLOW CRUDE SCALE			
124-126 A.m.p.	2.625	2.625	2.625

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	July 8	July 1	June 24
U. S. Motor	8.50	8.50	8.50
60-62 400 e.p.	9.50	9.50	9.50
61-63, 390 e.p.	9.75	9.75	9.75
64-66, 375 e.p.	10.00	10.00	10.00
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.75
64-66, cases (cargoes)	$2.00	$2.00	$1.90
KEROSENE			
44 water white	8.00	8.00	8.75
41-43 prime white	7.00	7.00	7.75
Water white, cases (cargoes)	$1.80	$1.80	$1.80
Prime white, cases (cargoes)	$1.70	$1.70	$1.70
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	4.00	4.00	4.00
*30 plus translucent gas oil	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125
Grade C bunker oil	$0.95 –$1.00	$0.95 –$1.00	$0.95 –$1.00
Grade C bunker oil, cargoes	$0.75 – 0.85	$0.75 – 0.85	$0.75 – 0.85
*Less than ½ of 1% sulfur.			
MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65
Grade C bunker oil, for bunkering purposes, taxes paid	$0.95 –$1.00	$0.95 –$1.00	$0.95 –$1.00
SOUTH TEXAS LUBRICATING OILS, (Viscosity at 100° F.(cold test 0) (Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	7.00	7.00	7.00
200 vis. No. 3 unfiltered pale	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
300 vis. No. 3 unfiltered pale	9.50 –10.50	9.50 –10.50	9.50 –10.50
500 vis. No. 3½ unfiltered pale	11.00 –12.00	11.00 –12.00	11.00 –12.00
750 vis. No. 4 unfiltered pale	13.50 –14.00	13.50 –14.00	13.50 –14.00
1200 vis. No. 5 unfiltered pale	16.50 –17.00	16.50 –17.00	16.50 –17.00
200 vis. No. 5-6 red oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300 vis. No. 5-6 red oil	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
500 vis. No. 5-6 red oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750 vis. No. 5-6 red oil	12.00 –12.50	12.00 –12.50	12.00 –12.50
1200 vis. No. 5-6 red oil	16.50 –17.00	16.50 –17.00	16.50 –17.00

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipments of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	July 8	July 1	June 24
U. S. Motor gasoline	8.50 – 8.75	8.50 – 9.00	8.75 – 9.25
41-43 w.w. kerosene	7.00 – 7.125	7.00 – 7.125	7.25
*26-32 translucent gas oil	4.00	4.00	4.00
*Less than ½ of 1% sulfur.			

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	July 8	July 1	June 24
Gasoline, U. S. Motor, 53-55 Gravity	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
Gasoline, U. S. Motor-blends and special cuts	7.50 –10.00	7.50 –10.00	7.50 –10.00
Gas Oil, 30-34, per barrel	$0.95 –$1.05	$0.95 –$1.05	$0.95 –$1.05
Diesel Oil, 27 plus, per barrel	$0.875–$1.00	$0.875–$1.00	$0.875–$1.00
Bunker oil, 14-18, per barrel	$0.70 –$0.85	$0.70 –$0.85	$0.70 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.75 – 6.25	5.50 – 6.25	5.50 – 6.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125, 150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	July 8	
	Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K or Continental ports*	33–35	38–40
Gulf to U. K. or Continental ports*	20–25	23–25
North Atlantic to U. K. or Continental ports*	18–23	21–23
Calif. to North Atlantic ports (not E. of N. Y.)	$1.00–$1.10	$1.07–$1.10
Gulf to North Atlantic ports (not E. of N. Y.)**	40–45	40–42

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.

**For Venezuela loading 1c per bbl. additional. For Tampico loading 4c per bbl. additional.

A *New Sales Feature* for This *Long Famous* Motor Oil!

SEALED
in the drum

REGISTERED
by number

CERTIFIED
100% pure paraffine oil

Positive Protection for DEEP-ROCK Positive Lubrication

Now you can positively guarantee the unadulterated purity of DEEP-ROCK Prize Motor Oils . . . Every drum is sealed at the refinery, the contents certified and the drum registered by number, traceable (like registered mail). When you break the seal, you *know* you are the first to open the drum. When the drum is once emptied, it is scrapped.

This is a brand new sales feature and it is *exclusively* DEEP-ROCK.

You will sell more oil . . . you will increase your clientele and their confidence in you, if you offer them this "Positive Protection."

Whether or not you now have a DEEP-ROCK franchise, *write us*, we'll have a DEEP-ROCK representative call and show you how to take advantage of the new sealed and registered drums.

15, 30 and 55 gallon drums, Certified, Sealed and Registered

SHAFFER
OIL and REFINING COMPANY
General Sales Offices: 300 West Adams Street, Chicago

Tank Wagon Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect July 8, 1929, as Posted by Principal Marketing Companies

S.O. NEW JERSEY TERRITORY

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Atlantic City, N. J.	12	2	14	18	13
Newark, N. J.	14	2	16	20	13
Annapolis, Md.	14	4	18	22	13
Baltimore, Md.	14	4	18	22	12
Cumberland, Md.	14	4	18	22	13
Washington, D. C.	14	2	16	20	12
Danville, Va.	14	5	19	23	12
Norfolk, Va.	14	5	19	23	13
Richmond, Va.	14	5	19	23	13
Roanoke, Va.	13	5	18	21	13
Petersburg, Va.	14	5	19	23	13
Charleston, W. Va.	14	4	18	22	13
Keyser, W. Va.	14	4	18	22	13
Parkersburg, W. Va.	12	4	16	20	13
Wheeling, W. Va.	14	4	18	22	13
Charlotte, N. C.	14	5	19	23	13
Hickory, N. C.	14	5	19	23	13
Mt. Airy, N. C.	14	5	19	23	13
Salisbury, N. C.	14	5	19	23	13
Charleston, S. C.	14	6	20	24	13
Columbia, S. C.	14	6	20	24	13

CONTINENTAL OIL

Denver, Colo.	14	4	18	21	15.5
Pueblo, Colo.	14	4	18	21	15.5
Grand Junc., Colo.	18.5	4	22.5	25.5	19
Casper, Wyo.	17	4	21	24	14
Cheyenne, Wyo.	18	4	22	25	15.5
Butte, Mont.	20.5	5	25.5	28.5	20
Helena, Mont.	20.5	5	25.5	28.5	20
Salt Lake City, Utah	18.5	3½	22	25	17
Boise, Ida.	20.5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	28.5	19
Albuquerque, N. M.	16	5	21	24	17

S. O. CALIFORNIA

Phoenix, Ariz.	14	4	18	22	21.5
Los Angeles, Cal.	16.5	3	19.5	22.5	15.5
Fresno, Cal.	17	3	20	23	16.5
San Francisco, Cal.	17	3	20	23	15.5
Reno, Nev.	21	4	25	28	19
Portland, Ore.	17.5	3	20.5	23.5	16.5
Seattle, Wash.	17.5	3	20.5	23.5	16.5
Spokane, Wash.	21.5	3	24.5	27.5	20.5
Tacoma, Wash.	17.5	3	20.5	23.5	16.5

Note: 3c per gal. discount to dealers off t.w. price thru S. O. California territory.

S. O. LOUISIANA

Little Rock, Ark.	15	5	20	24	13
Alexandria, La.	14	4	18	22	†16
Baton Rouge, La.	13	4	17	21	†14.5
Lake Charles, La.	††15.5	4	††19.5	††23.5	†16
New Orleans, La.	*14.5	4	*18.5	22.5	†16
Shreveport, La.	14.5	4	18.5	22.5	†15
Lafayette, La.	**15	4	**19	**23	†14
Bristol, Tenn.	17	5	22	25	14
Chattanooga, Tenn.	16.5	5	21.5	25.5	16
Knoxville, Tenn.	15	5	20	24	16
Nashville, Tenn.	14	5	19	23	16
Memphis, Tenn.	13	5	18	22	12.5

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax in addition to 4c state tax.

††Lake Charles gasoline prices include 1c parish tax

S. O. KENTUCKY

Ashland, Ky.	13	5	18	19	15.5
Catlettsburg, Ky.	13	5	18	19	15.5
Lexington, Ky.	16	5	21	23	15.5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	16	5	21	22	15.5
Clarksdale, Miss.	17	5	22	24	12.5
Gulfport, Miss.††	18.5	5	23.5	25.5	14
Jackson, Miss.	17	5	22	24	13
Natchez, Miss.	16.5	5	21.5	23.5	14
Vicksburg, Miss.	16.5	5	21.5	23.5	14
Birmingham, Ala.	18	4	22	24	16
Mobile, Ala.‡	18	4	22	24	15
Montgomery, Ala.*	19	4	23	25	16.5
Atlanta, Ga.	18	4	22	24	†16.5
Augusta, Ga.	18	4	22	24	†15.5
Macon, Ga.	18	4	22	24	†16.5
Savannah, Ga.	17	4	21	23	†15.5
Jacksonville, Fla.	17	5	22	24	14.5
Miami, Fla.	18	5	23	25	15.5
Tampa, Fla.	17	5	22	24	14.5
Pensacola, Fla.**	18	5	23	25	14.5

Note: Net price to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.

Latest Changes In Tank Wagon Prices

Gasoline Changes

S. O. New Jersey—T.w. gasoline cut 1c, s.s. 2c, Roanoke, to 18c and 21c respectively, including 5c tax, **June 29.**

Atlantic Refining — Gasoline prices at Wilmington, N. C., should have been 21c t.w., and 23c s.s., since April 1 when road tax became 5c, an increase of 1c.

S. O. Ohio—Gasoline prices cut 1c, Xenia, to 18c t.w. and s.s., including 4c tax, **June 8.**

T.w. up 1c, s.s. 2c, Washington C. H., to 20c and 21c respectively, **July 4.**

S. O. California—Correction: This company announces that the 1c general advance through territory except Arizona on June 19 did not include service station prices, as previously reported. T.w. only was advanced on that date. Prices are corrected in this issue.

Magnolia Petroleum—T.w. and s.s. up 1c, Muskogee, Oklahoma City and Tulsa, **July 2.** Prices at Muskogee and Oklahoma City became 17c and 20c, and at Tulsa, 15c and 19c, including 4c tax.

T.w. and s.s. cut 1c, Texarkana, to 15c and 19c respectively, including 2c Texas tax, **July 3.**

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices include 1c city tax.

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola, which went into effect Oct. 15, 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c.

S. O. NEBRASKA

	Gasoline		Total		Oil
	T.W.	Tax	T.W.	S.S.	T.W.
Omaha, Neb.	16.25	4	20.25	22.25	13.25
McCook	17.75	4	21.75	23.75	14.75
Norfolk	16.75	4	20.75	22.75	13.75
North Platte	17.75	4	21.75	23.75	14.50
Scottsbluff	17.75	4	21.75	23.75	14.25

S. O. INDIANA

Chicago, Ill.	16.0	0	16.0	17.0	13
Decatur, Ill.	16.2	0	16.2	17.2	13.1
E. St. Louis, Ill.	15.4	0	15.4	16.4	12.2
Joliet, Ill.	16.4	0	16.4	17.4	13.3
Peoria, Ill.	16.2	0	16.2	17.2	13.1
Quincy, Ill.	16.2	0	16.2	17.2	12.9
Indianapolis, Ind.	16.2	4	20.2	21.2	14.2
Evansville, Ind.	16	4	20	21	14
South Bend, Ind.	16.4	4	20.4	21.4	14.4
Detroit, Mich.	16.8	3	19.8	20.8	14.7
Grand Rapids, Mich.	16.7	3	19.7	20.7	14.6
Saginaw, Mich.	16.9	3	19.9	20.9	14.8
Green Bay, Wisc.	16.6	2	18.6	19.6	13.4
Madison, Wisc.	16.3	2	18.3	19.3	13.1
Milwaukee, Wisc.	16.1	2	18.1	19.1	12.9
La Crosse, Wisc.	17.2	2	19.2	20.2	14
Minneapolis, Minn.	17.2	3	20.2	21.2	13.9
Duluth, Minn.	17.5	3	20.5	21.5	13.9
Mankato, Minn.	17.1	3	20.1	21.1	13.7
Des Moines, Ia.	16.5	3	19.5	20.5	13.3
Davenport, Ia.	16.5	3	19.5	20.5	13.3
Sioux City, Ia.	16.1	3	19.1	20.1	12.9
Mason City, Ia.	16.5	3	19.5	20.5	13.3
St. Louis, Mo.	*15.9	2	17.9	18.9	12.3
Kansas City, Mo.	†16.9	2	18.9	19.9	11.6
St. Joseph, Mo.	†16.5	2	18.5	19.5	12.2
Fargo, N. D.	18.9	3	21.9	22.9	15.9
Grand Forks, N. D.	19.2	3	22.2	23.2	16.2
Minot, N. D.	18.9	3	21.9	22.9	15.9
Pierre, S. D.	17	4	21	22	14.4
Huron, S. D.	17.3	4	21.3	22.3	14.7
Wichita, Kans.	14.8	3	17.8	18.8	11.8
Bartlesville, Okla.	14.5	3	17.5	18.5	11.5

S. O. Indiana's quantity contract price schedule thru territory except Chicago on tank truck deliveries of gasoline, figured from the service station price, is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 3c for 6000 gals. or more a month.

In Chicago and vicinity, these discounts apply: Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Bryan and Chillicothe	*13	4	*17	17	14
Lima, Hamilton and Xenia	**14	4	**18	18	14
††10 Competitive Points	††15	4	††19	19	14
†At 6 Competitive Points	*15	4	*19	20	14
Elsewhere in Ohio	*16	4	*20	21	14

†These 6 points are: Marion, Hicksville, Celina, Arlington, Mortimer and Nevada, O.

*Dealers and commercial accounts get 2c per gal off t. w. price.

††These 10 points are: Findlay, Arcadia, Perrysburg, Fostoria, Wapakoneta, Urbana, Jamestown, St. Paris, Ada and Piqua. Discount to dealers is 3c per gal. off t.w. price.

**Discount to dealers and commercial consumers is 3c per gal. off t.w. price

MAGNOLIA PETROLEUM

Muskogee, Okla.	13	4	17	20	13
Oklahoma City	13	4	17	20	10
Tulsa, Okla.	11	4	15	19	10
Fort Smith, Ark.†	12	†3	15	20	12
Little Rock, Ark.	15	5	20	24	13
Texarkana, Ark.*	13	*2	15	19	13
Dallas, Tex.	13	2	15	19	13
Fort Worth, Tex.	13	2	15	18	12
Houston, Tex.	13	2	15	19	13
San Antonio, Tex.	13	2	15	19	11
El Paso, Tex.	14	2	16	20	16

*Within city of Texarkana, the state tax on gasoline is 2c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 3c applies. In this district outside of the city, the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

New York City	17	2	19	*21	15
Albany, N. Y.	15	2	17	19	15
Buffalo, N. Y.	15	2	17	19	14
Rochester, N. Y.	15	2	17	19	13
Syracuse, N. Y.	15	2	17	19	12
Boston, Mass.	16	2	18	20	15
Augusta, Me.	16	4	20	22	15
Manchester, N. H.	16	4	20	22	15
Burlington, Vt.	16	4	20	22	13

Note: S. O. New York allows concessions of 1 to 2c per gal. to dealers under posted tank wagon prices.

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York selling Socony gasoline

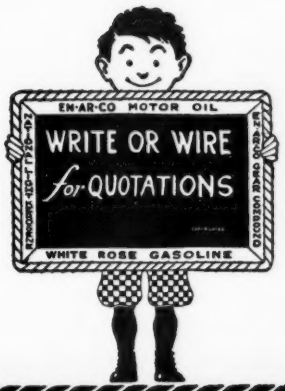
ATLANTIC REFINING

Pittsburgh, Pa.	17	*	17	23	14
Philadelphia, Pa.	17	*	17	23	14
Allentown, Pa.	17	*	17	23	14
Erie, Pa.	13	*	13	19	14
Scranton, Pa.	17	*	17	23	14
Altoona, Pa.	17	*	17	23	14
Williamsport, Pa.	16	*	16	20	14

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Florida, 1/8c on both; Georgia, 1/10c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/50c to ½c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa, 7/100c; Michigan 1/5c to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above state or other states there are local inspection fees.



En-ar-co
MOTOR OIL
White Rose
GASOLINE

YOU will make money if you handle these nationally advertised brands.

All grades of lubricating oils and greases.

The National Refining Co.
Cleveland, Ohio

ARE YOU planning to RETAIL FUEL OIL?

This is a big and profitable market—but it cannot be gone into blindly.

I have made money in this business—but it took years to learn it. It is new—it is growing.

I am now in a position to act as consultant with a few concerns—those in the fuel oil business or thinking of going in. A small expenditure now will mean more business and greater profits.

W. A. Dalton
Retail Fuel Oil Consultant
1000 Madison St., Gary, Ind.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect July 8, 1929

ATLANTIC REFINING

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Dover, Del.	17	3	20	22	14
Wilmington, Del.	17	3	20	22	14
Boston, Mass.	16	2	18	20	15
Springfield, Mass.	16	2	18	20	15
Worcester, Mass.	15	2	17	18	15
Fall River, Mass.	14	2	16	17	15
Providence, R. I.	14	2	16	17	15
Hartford, Conn.	16	2	18	20	14
New Haven, Conn.	16	2	18	20	15
Atlantic City, N. J.	16	2	18	20	13
Camden, N. J.	16	2	18	20	13
Trenton, N. J.	16	2	18	20	13
Annapolis, Md.	16	4	20	22	13
Baltimore, Md.	16	4	20	22	13
Hagerstown, Md.	16	4	20	22	13
Richmond, Va.	16	5	21	23	13
Wilmington, N. C.	16	5	21	23	13
Brunswick, Ga.	17	4	21	23	**16.5
Jacksonville, Fla.	17	5	22	24	14.5

Note: 2c per gal. discount off t.w. price to dealers thru territory; also 2c off to commercial accounts under contract for one year.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	15.7	17.2	19
Detroit	17.4	18.9	20.7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21.7
Minneapolis	*19.7	*21.2	*23
St. Louis	15.6	17.1	18.9
New York		17	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.

Petroleum Spirits

	(Solvent)
Tank Cars	
New York refineries	12.00
Philadelphia refineries	12.00
Tank Wagon or Steel Barrels	
New York City	17
New England	19
New Jersey	16
Pennsylvania	16–18

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	S.S	Oil T.W.
ONTARIO				
Toronto	20.5	5	29	21
Ottawa	14.5	5	23	21
Cochrane	25.5	5	..	26
Ft. William	23.5	5	32	23.5
MANITOBA				
Winnipeg	22.5	3	29	22.5
SASKATCHEWAN				
Regina	27	3	34	27
ALBERTA				
Edmonton	28.5	5	37	28.5
Calgary	24.5	5	33	24.5
BRITISH COLUMBIA				
Vancouver	23	3	30	24
QUEBEC				
Montreal	21.5	5	30	22
Quebec City	22.5	5	31	23
Three Rivers	22.5	5	31	23
NEW BRUNSWICK				
St. John	25	5	34	25
Moncton	25	5	34	25
NOVA SCOTIA				
Halifax	25	5	34	25
Sydney	25	5	34	25
PRINCE EDWARD ISLAND				
Charlottetown	25	5	34	25

Note: In districts surrounding these points 1c additional is added to city price.

Pumps for Visible Dispensers

Write for Our Catalog

Type B-1

Twin cylinder pumping units to replace old, worn out rotary pumps in gasoline dispensers. Easily installed in any make of pump. It is easy to operate and pumps 10 gallons in 20 seconds.

Price $16.50

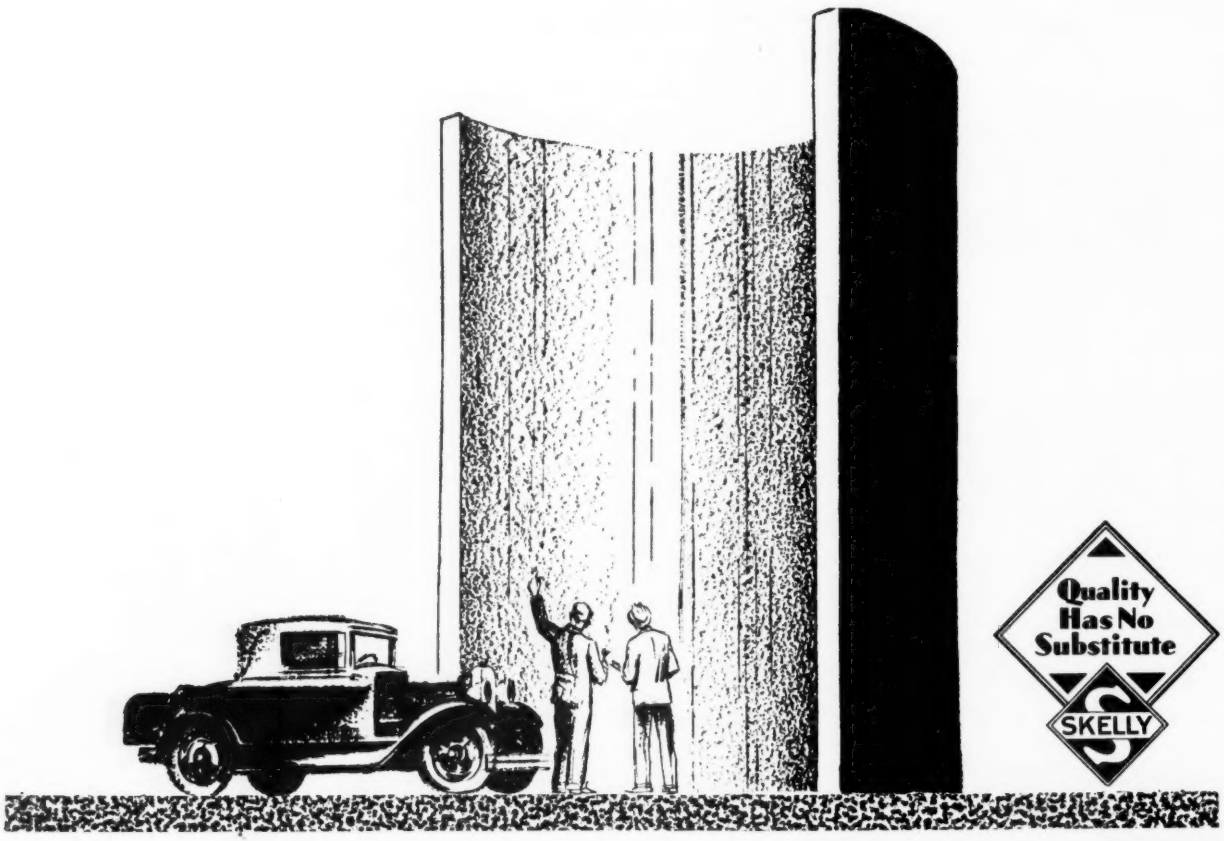
Volcker Mfg. Co.
Huntington, Indiana
Address Dept. "D"

DON'T DIVIDE HIS BUSINESS WITH A COMPETITOR

Concentrate all his purchases in your stations by selling him a handy, convenient coupon book.

A coupon book brings him back again and again—creates a bond of friendship. He's your customer indefinitely. Write us for complete information on Allison Coupon Books. They're accurate, neat and well made, yet cost no more.

ALLISON COUPON CO.
INDIANAPOLIS, INDIANA
SINCE 1888



The "Writing on the wall" of the cylinder tells you the oil didn't stand up . .

"Writing on the wall." There it is, the cylinder deeply scored. And scoring means only one thing—the oil didn't stand up.

So much is expected of oil in modern motors—so much is demanded by your customer for his modern automobile, you cannot afford to sell him less than *extra* protection.

Recognizing these demands, Skelly Oil Company made The New TAGOLENE more than equal to the breaking-down forces of high heat and friction.

The satisfaction and security your car owner buys, are worth many times more to him than the 30 cents he pays for this extraordinary lubricant.

Let us give you more details. Write, wire or phone.

SKELLY OIL COMPANY

El Dorado, Kansas Tulsa, Oklahoma
Minneapolis Kansas City Omaha

30c
A QUART

RADIO—Listen in every Friday evening at 9 p. m. to the Skellodians over NBC network: WLS, Chicago; KSD, St. Louis; WOC, Davenport; WOW, Omaha; WDAF, Kansas City; KSTP, St. Paul; KOA, Denver, and KVOO, Tulsa.

THE NEW
TAGOLENE
MOTOR OIL
MADE TO STAND ABUSE

Crude Oil Prices (in Effect July 8, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Alleghany, N. Y. District) *$4.05
Bradford District Oil in National Transit Lines (Bradford District) *4.05
Penna. Grade Oil in National Transit Lines (Other Pennsylvania) *4.05
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania) 4.00
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) 3.90
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district) 3.85
Cabell Grade in Eureka Pipe Lines (West Virginia) 1.65
Corning Grade in Buckeye Pipe Lines (Ohio) 1.90
Corning, O., heavy grade 1.80
Somerset Oil in Cumberland Pipe Lines (Kentucky) 1.80
Ragland Grade in Cumberland Pipe Lines (Kentucky) $0.60

*Oil run prior to July 1, 1929 is $4.00 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines $1.80

MICHIGAN

(Posted by Dixie Oil Co.)

Dundee (Muskegon) $1.10

Traverse (Muskegon):

32-32.9	$1.25	37-37.9	$1.50
33-33.9	1.30	38-38.9	1.55
34-34.9	1.35	39-39.9	1.60
35-35.9	1.40	40-40.9	1.65
36-36.9	1.45	41-41.9	1.70

(Posted by Pure Oil Co.)

Midland, Midland County $1.70

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
Effective May 21, 1929

Wooster	$1.90	Princeton	$1.75
Lima	1.80	Illinois	1.75
Waterloo	1.20	Plymouth	1.28
Indiana	1.57	West Kentucky	1.83

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia $2.20
Oil Springs 2.27

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)
Effective May 20, 1929

Below 25	$0.85	35-35.9	$1.40
25-25.9	0.90	36-36.9	1.45
26-26.9	0.95	37-37.9	1.50
27-27.9	1.00	38-38.9	1.55
28-28.9	1.05	39-39.9	1.60
29-29.9	1.10	40-40.9	1.65
30-30.9	1.15	41-41.9	1.70
31-31.9	1.20	42-42.9	1.75
32-32.9	1.25	43-43.9	1.80
33-33.9	1.30	44 and above	1.85
34-34.9	1.35		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

May 20, 1929, same schedule as Prairie in above fields.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

May 20, 1929, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 26	$0.70	29-29.9	$0.95
26-26.9	0.75	30-30.9	1.05
27-27.9	0.85	31-31.9	1.15
28-28.9	0.90		

May 20, 1929, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in West Texas which see:

Iatan district $0.93
Corsicana heavy 0.80
Luling 0.90
Mirando 0.90

Carter Oil Co.

(Oklahoma and Kansas)

May 20, 1929, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.
Effective May 20, 1929

Hutchinson and Carson Counties:

Below 32	$0.90	38-38.9	$1.25
32-32.9	0.95	39-39.9	1.30
33-33.9	1.00	40-40.9	1.35
34-34.9	1.05	41-41.9	1.40
35-35.9	1.10	42-42.9	1.45
36-36.9	1.15	43-43.9	1.50
37-37.9	1.20	44 and above	1.55

Wheeler County:

Below 30	$0.90	37-37.9	$1.30
30-30.9	0.95	38-38.9	1.35
31-31.9	1.00	39-39.9	1.40
32-32.9	1.05	40-40.9	1.45
33-33.9	1.10	41-41.9	1.50
34-34.9	1.15	42-42.9	1.55
35-35.9	1.20	43-43.9	1.60
36-36.9	1.25	44 and above	1.65

Gray County:

Below 29	$0.90	37-37.9	$1.35
29-29.9	0.95	38-38.9	1.40
30-30.9	1.00	39-39.9	1.45
31-31.9	1.05	40-40.9	1.50
32-32.9	1.10	41-41.9	1.55
33-33.9	1.15	42-42.9	1.60
34-34.9	1.20	43-43.9	1.65
35-35.9	1.25	44 and above	1.70
36-36.9	1.30		

Above prices met by The Texas Co. and Magnolia on May 20.

WEST TEXAS

Humble Oil & Refining Co.
Effective May 20, 1929

Winkler, Crane, Upton, Crockett, Howard and Pecos Counties, also Lea County, N. Mex.:

Below 25	$0.70	25-25.9	$0.74
26-26.9	0.78	32-32.9	$1.02
27-27.9	0.82	33-33.9	1.06
28-28.9	0.86	34-34.9	1.10
29-29.9	0.90	35-35.9	1.14
30-30.9	0.94	36 and above	1.18
31-31.9	0.98		

May 20, 1929, The Texas Co. posted same prices as Humble in Crane, Upton, Pecos and Winkler., and Magnolia in Crane, Upton, Winkler, Glasscock, Howard and Mitchell.

SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)
Effective May 20, 1929

Mirando $0.90
Salt Flat 1.25

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado Crichton, De Soto and **Cotton Valley.
Effective May 22, 1929

Below 28	$1.00	36-36.9	$1.45
28-28.9	1.05	37-37.9	1.50
29-29.9	1.10	38-38.9	1.55
30-30.9	1.15	39-39.9	1.60
31-31.9	1.20	40-40.9	1.65
32-32.9	1.25	41-41.9	1.70
33-33.9	1.30	42-42.9	1.75
34-34.9	1.35	43-43.9	1.80
35-35.9	1.40	44 and above	1.85

**Cotton Valley, below 36, $0.85. Beginning with 36-36.9, same schedule as above.

Smackover, below 24 ..... $0.85
do 24 and above 1.00
Bellevue 1.30
*Urania, La. 1.10
†East El Dorado 0.75

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

May 20, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.85; 25-25.9, $0.90; 26-26.9, $0.95; 27-27.9, $1.00.

May 22, Magnolia, Atlantic, Shreveport-Eldorado Pipe Line, Louisiana Oil, and Gulf Companies met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.
Effective May 22, 1929

Below 28	$0.90	30-30.9	$1.02
28-28.9	0.94	31-31.9	1.06
29-29.9	0.98	32 and above	1.10

GULF COASTAL

Posted by Humble Oil & Refining Co.
Effective May 20, 1929

Grades A	$1.30	29-29.9	$1.30
Grades B:		30-30.9	1.33
Below 25	$1.15	31-31.9	1.36
25-25.9	1.18	32-32.9	1.39
26-26.9	1.21	33-33.9	1.42
27-27.9	1.24	34-34.9	1.45
28-28.9	1.27	35 and above	1.48

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only.

Minnesota Association Changes Name

MINNEAPOLIS, July 5.—The name of the Minnesota Petroleum Association has been changed to the Northwest Petroleum Association, effective July 1. The North Dakota Petroleum Association has joined in this move and both associations will operate under that name. Paul E. Hadlick, formerly secretary of the Minnesota association, and acting secretary of the North Dakota association, takes over the secretarial duties of the Northwest association. Headquarters remain at 638 Builders Exchange, Minneapolis.

E. C. Laughlin, Sterling Oil Co., Minneapolis, has been elected first president of the new association.

J. P. Deegan, Northwestern Oil Co., Superior, Wis., continues as chairman of the membership committee.

Any oil jobber operating in Minnesota, North or South Dakota, or the western part of Wisconsin, is eligible for membership in the Northwest Petroleum Association. Present members of the Minnesota association have become charter members of the new association.

Checking Truck Weights On Nebraska Roads

CLEVELAND, July 8.—Nebraska is seeking to cut down maintenance costs on its highways by enforcing regulations against overloading of busses and trucks according to the bulletin of the Nebraska Independent Oil Men's Association. Buck Taylor, former senate sergeant at arms, has been appointed chief of traffic control.

Taylor is finding difficulty in his work because when he sets up a weight control point drivers who are stopped promptly call their employers and traffic is detoured around the weight point.

LEAKESVILLE, N. C., July 6.—What is said to be one of Rockingham county's most attractive filling stations is being built here by C. P. Robertson. Mr. Robertson owns other stations in this and Forsyth counties.

The new station will be of brick, will have concrete driveways from two streets, rest rooms, four gasoline pumps and greasing racks.

CLEVELAND, July 8.—Gasoline taxes in Nebraska now are being collected by the state treasurer. F. W. Bass, former collector, has been appointed secretary to the governor.

THE buyer is never "out" to these super-salesmen. They run the tightest gauntlet of office boys, secretaries and buffers successfully.

When you start these salesmen on a call, they get there regardless of weather, baseball games and private offices. The U. S. mail service sees to it that your samples reach your prospect safely and surely.

Are you using these fine, clear, distortionless sample oil bottles enough in your business? Let us send you a sample 2-4 or 8 ounce size if you are not thoroughly familiar with their unusual quality.

OWENS-ILLINOIS
GLASS COMPANY

Toledo, Ohio
ESTABLISHED 1873

PETROLEUM PRODUCTS
From All Fields

Carloads, Tank Cars, and Cargoes
For Domestic or Export

GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE—RED OILS
WAX—PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

For 35 years of reliability, service and integrity—this Company enjoys an International Reputation

JAMES B. BERRY SONS' CO., INC.
General Office—Oil City, Pa.

District Offices at
New York, Philadelphia, Boston, Chicago
London—Hamburg

Cable Address—JASBER Oil City *All Codes*

"What About The OILGRAM?"

—asked the executive of a gasoline company on the west coast recently of a Tulsa oil man. His answer was . . .

"If you were to wire me for Mid-Continent gasoline prices today, I would phone a member of the OILGRAM staff, and my reply to you would be the *gist of what he told me.* The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day. *They know their business.*"

You too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers.

The service costs only $25 a quarter, or $75 a year, payable in advance. Approximately 30 cents a day—less than the cost of one wire or one phone call.

Avail yourself of this fast, daily market service today—send your order with check to the nearest mailing point.

TULSA—904 World Bldg.
CHICAGO—35 East Wacker Drive
NEW YORK—342 Madison Avenue
CLEVELAND—1213 West Third St.

Crude Oil Prices (in Effect July 8, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective May 20, 1929

Grades A	$1.30	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.49	40-40.9	$1.69
36-36.9	1.53	41-41.9	1.73
37-37.9	1.57	42-42.9	1.77
38-38.9	1.61	43-43.9	1.81
39-39.9	1.65	44 and above	1.85

***Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.**

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B.

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective May 20, 1929)

‡Salt Creek 29-29.9	$1.10
" " 30-30.9	1.15
" " 31-31.9	1.20
" " 32-32.9	1.25
" " 33-33.9	1.30
" " 34-34.9	1.35
" " 35-35.9	1.40
" " 36-36.9	1.45
" " 37 and above	1.50
Elk Basin	1.65
Grass Creek light	1.65
Big Muddy	$1.43
Lance Creek	1.68
Rock Creek	1.40
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.65
‡Cat Creek, Mont	1.65
Sunburst, Mont	1.75
‡Hogback, N. Mex	1.70
Artesia, N. Mex	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Elwood Terrace	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick †Kern River	Midway-Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Kettleman Hills	*Santa Maria (Orcutt)	*Ventura
14-14.9	$ .70	$ .70	$ .70	....	....	$ .70	$ .70	....	$ .50	$ .50	$ .50	$ .50	$ .50	$ .70	....	$ .65	$ .70
15-15.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
16-16.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
17-17.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
18-18.9	.75	.75	.75	....	....	.75	.75	....	.50	.56	.56	.56	.56	.70	....	.70	.75
19-19.9	.80	.80	.80	....	....	.80	.80	....	.50	.62	.62	.62	.62	.75	$1.65	.70	.80
20-20.9	.85	.85	.85	....	....	.84	.84	....	....	.68	.68	.68	.68	.80	for	.70	.85
21-21.9	.89	.89	.89	....	....	.88	.88	.89	....	.74	.74	.74	.74	.85	55°	.86	.86
22-22.9	.93	.93	.93	....	....	.91	.91	.92	....	.80	.80	.80	.80	.90	gravity	.87	.87
23-23.9	.97	.97	.97	....	....	....	.94	.95	....	.85	.85	.85	.85	.95	and	.90	.90
24-24.9	1.01	1.01	1.01	1.01	....	....	.97	.98	....	.90	.90	.88	.88	.98	over	.94	.94
25-25.9	1.05	1.05	1.05	1.05	....	....	1.00	1.01	....	.95	.95	.91	.91	1.01	....	.98	.98
26-26.9	1.09	1.09	1.09	1.09	....	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	....	1.02	1.02
27-27.9	1.13	1.13	1.13	1.13	....	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	....	1.10
29-29.9	1.21	....	1.21	1.21	....	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	....	....	1.14
30-30.9	1.25	....	1.25	1.25	....	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	....	1.18
31-31.9	1.30	....	....	1.30	....	....	....	1.25	....	1.28	1.28	1.14	....	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	....	....	1.30	....	1.34	1.34	1.18	....	....	....	....	1.28
33-33.9	....	....	....	1.41	....	....	....	1.35	....	1.40	1.40	1.22	....	....	....	....	1.34
34-34.9	....	....	....	1.47	$1.16	....	....	1.40	....	....	1.46	1.26	....	....	....	....	....
35-35.9	....	....	....	1.53	1.22	....	....	1.45	....	....	....	1.30	....	....	....	....	....
36-36.9	....	....	....	1.59	1.28	....	....	1.50	....	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	1.34	....	....	1.55	....	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	1.40	....	....	1.60	....	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	1.46	....	....	1.65	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	1.52	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	1.58	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	1.64	....	....	....	....	....	....	....	....	....	....	....	....

***Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except it does not post prices in Wheeler Ridge, Whittier, La Habra, Newhall and Kettleman Hills. Standard does not contract for crude testing 11-13.9 gravity, but pays 45c a barrel when purchased.**

†Kern River down to 12° gravity is 50c; 11-11.9 is 45c.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	July 8	July 1
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$0.90-1.00	$0.90-1.00
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of cwt.	$3.50-4.50	$3.50-4.50
Liquid Chlorine, tank cars, wks. lb.	3.50–5.00	3.50–5.00

Compounders' Supplies

	July 8	July 1
Vegetable Oils		
Linseed carloads, spot lb.	11.20	10.70
Tanks, spot	10.40	9.90
Soya Bean, Tanks, coast, lb.	9.00	9.625
Oleic Acid		
Distilled, tanks lb.	9.25	9.25
Distilled, bbls. lb.	10.375	10.375
Saponified, tanks lb.	9.50	9.50
Saponified, bbls. lb.	10.625	10.625
Lard Oils		
Prime Winter Strained lb.	15.00	15.00
Extra Winter Strained lb.	13.00	13.00
Extra lb.	12.625	12.265
Extra No. 1 lb.	12.00	12.00
No. 1 lb.	11.75	11.75
No. 2 lb.	11.50	11.50
Tallow oil lb.	10.75	10.75
Neatsfoot Oil		
Pure, bbls. lb.	13.50	13.50
Extra, bbls. lb.	12.25	12.25
No. 1 bbls. lb.	12.00	12.00
Cold Pressed lb.	13.75	13.75
Fish Oils		
Menhaden Oil		
Light Pressed gal.	71	71
Light Pressed, tank cars, N.Y. gal.	67	65
White bleached gal.	77	77
Yellow bleached gal.	65	73
Whale, extra winter bleached, gal.	80	82
Naval Stores		
Steam distilled turpentine, N. Y. gal.	51	51
Steam distilled turpentine, Savannah gal.	46	46
Gum turpentine, N. Y. gal.	54.00	54.00
Gum turpentine, f.o.b. cars Savannah gal.	50	50
Wood Rosin F, N. Y. bbl.	$7.30	$7.30
Wood Rosin F, Savn'h. bbl.	$6.50	$6.50
Gum Rosin B, N. Y. bbl.	$7.50	$7.50
Gum Rosin B, f.o.b. cars Savannah bbl.	$6.80	$6.80
Rosin oil, pure gal.	61	61
Rosin oil, compounded gal.	50	50
Pine Tar		
Kiln burnt bbl.	$13.00–14.00	$13.00–14.00
Retort bbl.	$13.50–14.50	$13.50–14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	57–64	57–64

OIL STOCKS AND FINANCES

National Petroleum News

Oil Well Supply Members And Districts Changed

PITTSBURGH, Pa., July 6.—Oil Well Supply Co., with headquarters here, has made several changes in its personnel and distribution territories on July 1. Included in these changes are the consolidation of the north and south Texas, Mid-Continent, Rocky Mountain and Calgary, Alta. sales districts into the Midwest division, Tulsa. That new division will be headed by H. J. Morlang, newly elected vice president.

E. H. James, vice president and treasurer, has been made vice president in charge of manufacturing, with headquarters at Imperial Works, Oil City, Pa. for one-half the time, and the other half at Pittsburgh where he will fulfill his duties as treasurer.

H. D. Wilson, formerly of the Wilson-Snyder Mfg. Co., has been elected to the board of directors succeeding A. B. Sheets, resigned.

Other changes in personnel were these transfers:

J. M. Post, from Tulsa to Oil City as district manager in charge of eastern stores; J. J. Durst, from the Rocky Mountain district, to division manager of the Midwest division at Tulsa; and Frank L. Wiegand, from the south Texas district, to take charge of inventories and merchandise at Tulsa.

The engineering, purchasing, order and stock control departments have been transferred from Pittsburgh to Oil City. E. E. Grove is chief engineer and H. S. Charnell purchasing agent. H. E. Hamilton will be manager of sales of the manufacturing division.

The insurance department has been absorbed by the legal department, headed by E. W. Criswell, secretary, Pittsburgh.

Sun Orders Tanker

PHILADELPHIA, July 5.—Sun Oil Co. has placed an order with its subsidiary Sun Shipbuilding & Drydock Co. for a tankship which will cost $1,750,000.

NEW YORK, July 5.—Cities Service Co. has formed a new subsidiary styled the Cities Service Petroleum Co. which will operate in California. The new company has an authorized capital of $1,000,000. Heretofore Cities Service production activities have been mainly in the Mid-Continent.

Financial Notes

Mexican Seaboard Oil Corp.—All of the recent issue of 248,877 shares of no par common stock has been subscribed, it was announced. Stockholders of May 29 record were offered the stock at $32 a share.

McColl Frontenac Oil Co.—Holders of preferred stock in the Frontenac Oil Refineries, Ltd., a subsidiary, are being offered preferred stock in the parent company on a share for share basis plus dividends accrued since Aug. 1, 1927.

Gilmore Oil Co.—Directors have proposed increasing the capital stock to 1,000,000 no par shares. New stock is to be issued share for share for present outstanding stock, when proposed issue has been approved by two thirds of outstanding stock. Company reports large increase in gasoline sales and earnings this year over last year.

Standard Oil Co. (N. J.)—Stock is being offered employes at $53 a share under the stock acquisition plan.

Canadian Royalty Co. Offers Stock

CLEVELAND, July 6.—A royalty corporation known as the Nordon Corp., Ltd., of Canada, has recently put on the Canadian market 2,000,000 no par common shares at $2 a share. The corporation has purchased royalty interests in California, Texas, Oklahoma, Kansas and Ohio, it reports, preliminary to prospecting for oil south of Calgary in the province of Alberta.

Officers of the company are Glen M. Ruby, Calgary, formerly vice-president and general manager of the Hudson's Bay Marland Oil Co., who is president and general manager; Samual R. Smith, formerly head of the land department of the Hudson's Bay company, who is vice-president and assistant general manager, and C. G. Willis, Los Angeles, formerly assistant to Dr. Van der Gracht on the Marland Oil Co., who is manager of the properties in the United States.

Among the directors is Robert B. Moran, a geologist who formerly was with the Standard Oil Co. of California.

Pennsylvania Standard Increases Capital

NEW YORK, July 5.—Capital stock of the Standard Oil Co. of Pennsylvania has been increased from $1,000,000 to $10,000,000. This company is the wholly owned operating subsidiary of the Standard Oil Co. (N. J.) in Pennsylvania.

The increase has been made necessary, it is said, by the expansion of the company in the Pennsylvania gasoline and motor oil markets, and by contemplated expansion.

The Standard of Pennsylvania recently bought Independent marketing properties in Philadelphia, Harrisburg, and Pittsburgh.

Viking Oil Corp. Sells Block of Preferred

CLEVELAND, July 6.—Viking Oil Corp., Warren, Pa., has just issued at $31 a share 18,000 shares of $2 cumulative and participating no par preferred stock. Viking manufactures 100 per cent Pennsylvania lubricating oils, chiefly bright stocks.

President L. C. Jamieson wrote the underwriter that the purpose of the issue was to retire bank loans, to provide for corporate purposes and to purchase a portion of the holdings of certain stockholders.

Mr. Jamieson wrote property of the company had been appraised at $700,813 after allowing for depreciation, and all property was free of lien or mortgage.

Earnings in 1928 amounted to $109,769. On April 1, he said, the company had orders for about a quarter of its output for this year. Its sales the first quarter of this year were 42 per cent larger than sales in the first quarter of 1928. He said aviation was increasing Pennsylvania motor oil sales.

The new stock is callable in whole or in part on any dividend date on 60 days' published notice at $35 a share and accrued dividends. After the payment of the $2 annual dividend on this stock and $1 a share on the common stock, one half the earnings of the company up to $2 a share on the preferred, may be used as participating dividends or may be placed into a sinking fund for retirement of this stock.

F. Y. Toy & Co., New York, is the underwriter.

Its the EXTRA STRENGTH *that engineers demand . . .*

Imperial

QUALITY PRODUCTS

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U. S. Motor
High Test
High Compression
Aviation
KEROSENES
TRACTOR FUELS
FURNACE OILS
GAS OILS
FUEL OILS
ROAD OILS
LUBRICATING OILS

In the building of the giant skyscraper the engineer is faced with the problem of choosing materials . . . and it's the *extra strength* he demands to insure absolute safety.

As the engineer decides on the materials that insure him that extra strength . . . the jobber with his future business in mind, will do well to consider IMPERIAL Petroleum Products for their *extra quality — that keeps motorists satisfied.*

Imperial Refineries

Imperial Refining Co. San Angelo Refining Co.
Kettle Creek Refining Co. Wickett Refining Co.

General Offices
TULSA, OKLAHOMA

Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 6 Sales	First	High	Low	Last	Change
43⅜	27⅛	42⅝	22⅛	(sh) 922,075	N.P.	Amerada Corp	50cQ	Apr. 30, 29	52,100	24¾	33¾	24½	32	+ 7¼
85	51¼	64¾	43⅛	(sh) 209,180	N.P.	American Republics Corp	....	.....	900	47	48¾	45⅛	45⅛	— 2¾
5 ⅝	37½	47¼	40	$56,000,000	$25	Associated Oil	50cQ	June 30, 29	190	44¼	44¼	44	44	— ¼
62½	50	77⅜	53½	50,000,000	25	Atlantic Refining	‡25cQ	June 15, 29	112,800	72⅞	*77⅜	71¾	77¾	+ 5
118¼	114½	117⅝	114	20,000,000	100	do pfd	$1.75Q	May 1, 29	.....	.....	.....	.....	.....	.....
53	20	49½	38⅛	47,261,125	25	Barnsdall Corp. A	50cQ	May 6, 29	32,000	42	43	41⅛	43	+ 1⅛
51¼	20	49	38⅛	300,525	25	do B	50cQ	May 6, 29	.....	.....	.....	.....	.....	.....
24½	12¼	29½	20	(sh) 956,075	N.P.	Beacon Oil	....	.....	16,200	28⅞	28⅞	27¾	28	— ½
36	25¾	30	25	$51,524,150	$25	California Petroleum	....	Jan. 1, 29	.....	.....	.....	.....	.....	.....
.....	.....	35¼	34½	(sh) 4,634,163	N.P.	Continental Oil (Delaware)	....	.....	2,700	34⅞	35¾	34½	34½	+ ⅛
94⅛	68	87⅜	63	21,031,400	100	General Asphalt	....	.....	11,600	83	85¼	83	84½	+ 2½
141	110⅛	131	104⅛	6,628,200	100	do pfd	$1.25Q	June 1, 29	120	125	125	125	125	— 3½
167	79	107	70½	25,000,000	100	Houston Oil	....	.....	5,100	80	83¾	80	82⅞	+ 2⅞
38⅜	21¾	39¼	30	(sh) 1,333,157	N.P.	Independent Oil & Gas	50cQ	Apr. 30, 29	11,900	34¾	35⅝	34¼	34⅞	0
39⅜	9	52⅝	29	$4,299,190	$10	Indian Refining	....	Dec. 15, 20	19,800	44¾	46⅛	43	44½	— ¼
37¼	8½	48¾	28	4,550,110	10	do ctfs	....	.....	26,600	41⅜	44½	40	42⅜	— ⅝
185	140	165	160	1,977,700	100	do pfd. new	$1.75Q	Apr. 1, 29	.....	.....	.....	.....	.....	.....
39⅛	27⅜	38⅜	26	3,992,387	N.P.	Lago Oil & Transport	....	May 2, 27	4,700	34⅝	35⅞	33⅞	33⅞	— ⅛
19¾	9⅜	18	12½	(sh) 1,187,298	N.P.	Louisiana Oil Refining	....	.....	7,700	12½	13	12½	12⅝	+ ⅛
96	78	100	89	$4,000,000	$100	do pfd	$1.62½	May 15, 29	180	92	92¾	92	92	+ 1½
25½	12½	18⅛	12	(sh) 330,000	N.P.	Maracaibo Oil	....	.....	2,900	13¼	14½	13¼	14⅜	+ ⅝
49¾	33	47⅞	33⅛	(sh) 2,316,897	N.P.	Marland Oil Co	....	Mar. 31, 27	17,300	35	35⅞	34¼	35	0
360	250	295	205	$45,942,800	$100	Mexican Petroleum	‡$3Q	Apr. 20, 29	10	228	228	228	228	+21
.....	.....	.....	.....	12,000,000	100	do pfd	$2Q	Apr 20, 29	.....	.....	.....	.....	.....	.....
73	43⅝	69⅜	36¼	(sh) 995,500	N.P.	Mexican Seaboard	....	Nov. 15. 24	66,100	54⅝	54¾	48⅞	50	— 3
44½	25⅛	39⅞	30½	(sh) 1,857,461	N.P.	Mid-Continent	50cQ	May 15, 29	21,000	33¼	34¾	33⅛	33⅝	+ ⅛
120½	103¼	121	120¼	$6,718,000	$100	do pfd	$1.75Q	June 1, 29	.....	.....	.....	.....	.....	.....
7⅜	2⅜	5⅛	3½	23,849,720	10	Middle States	....	July 1, 23	8,900	3¾	4	3½	3¾	+ ⅛
5⅜	1½	3½	2¼	5,950,500	10	do ctfs	....	.....	1,500	2½	2⅞	2½	2⅞	+ ½
2¼	1	1½	1	(sh) 3,500,000	N.P.	Pacific Oil	....	.....	2,200	1	1⅛	1	1	0
55½	38¼	63	41⅛	$50,000,000	$50	Pan American P. & T	....	Oct. 20, 27	1,400	54	55	53	54½	+ 1
58⅞	37¾	66¾	40½	121,101,400	50	do B	....	Oct. 20, 27	52,800	56⅛	58¾	55⅜	57¼	+ ⅝
28⅜	15½	17½	13¾	(sh) 400,000	N.P.	Pan American Western B	....	Jan. 30, 27	70	13⅞	14	13⅞	14	+ ¼
21⅜	11½	15¼	9½	(sh) 199,370	N.P.	Panhandle P. & R	....	.....	1,000	9⅝	9⅞	9½	9⅝	0
106¼	70	76	47½	$2,935,200	$100	do pfd	....	July 2, 23	.....	.....	.....	.....	.....	.....
53⅞	35¼	47	37¼	(sh) 2,406,803	N.P.	Phillips Petroleum	37½cQ	July 1, 29	15,800	36¾	38½	36⅝	38	+ ¾
5¼	½	3⅜	2	$29,622,925	$25	Pierce Oil	....	.....	1,900	2	2⅛	2	2	0
50	16¼	51½	30	15,000,000	100	do pfd	....	Feb. 1, 22	500	39	40	39	40	+ 1
6⅜	3½	5⅞	4¼	(sh) 2,500,000	N.P.	Pierce Petroleum	....	.....	2,600	4¼	4⅜	4⅛	4⅛	— ¼
64⅜	59½	65⅝	55	$60,636,450	$25	Prairie Oil & Gas	....	Aug. 31, 27	7,100	55½	56⅜	55⅛	55⅜	— ⅜
.....	.....	61⅞	53⅝	101,250,000	25	Prairie Pipe Line	‡75cQ	June 30, 29	4,100	60	60	59½	59¾	+ ¼
29⅞	16	25⅞	18	37,450,850	50	Producers & Refiners	....	Sept. 15, 23	500	18	18½	†18	18¼	— ¼
49⅝	41	45¾	38⅛	2,845,350	50	do pfd	....	May 1, 25	100	42	42	42	42	— 1
31¼	19	30⅝	23½	75,959,250	25	Pure Oil Co	37½cQ	June 1, 29	17,100	27	28	26⅝	27	0
119	108	115½	111½	13,000,000	100	do 8% pfd	$2Q	July 1, 29	160	112⅛	113⅝	112	112¼	+ ¼
56	23½	49⅝	40	47,127,725	25	Richfield Oil	50cQ	May 15, 29	12,100	43¼	43¼	41⅞	42⅛	+ ⅛
.....	.....	42½	28⅛	(sh) 1,200,000	N.P.	Rio Grande Oil Co	‡$1S.A.	Jan. 25, 29	14,100	29⅜	32	29½	30¼	+ 1¼
64	44⅝	55⅜	31¾	(sh) $46,646	$13.40	Royal Dutch N. Y. shares	$1.336	Feb. 8, 29	900	53¼	54¼	53¼	53¼	+ ¼
57½	39⅜	55⅜	43	(sh) 65,203,000	£2	Shell Transport & T	96.4c	Feb. 8, 29	300	45	45¼	45	45¼	— 1¼
39⅜	23¼	31¾	26	12,254,979	N.P.	Shell Union Oil	35cQ	July 1, 29	19,100	26⅝	26⅞	26¼	26¾	+ ⅛
27¼	18⅛	37¼	18¼	$8,357,280	$10	Simms Petroleum	40cQ	June 15, 29	41,100	30¾	33⅜	30½	32½	+ 1½
46¾	17⅜	45	36	5,494,095	N.P.	Sinclair Consolidated	‡50cQ	July 15, 29	89,100	36⅞	37⅜	36	37⅛	+ ⅞
110	102½	111	107¾	$16,025,200	$100	do pfd	$2Q	May 15, 29	300	109	109½	109	109	0
42⅝	25	46⅛	32⅞	27,396,590	25	Skelly Oil Co	50cQ	June 15, 29	35,900	41	43¾	39¾	42⅝	+ 1⅝
80	53	81⅞	64	(sh) 13,016,435	N.P.	S. O. California	62½cQ	June 15, 29	24,100	73⅞	75⅜	72¾	73¾	+ 1⅛
59¾	37¾	62⅜	48	$612,095,850	$25	S. O. New Jersey	‡25cQ	June 15, 29	64,100	57⅜	58	56¾	57¾	+ ⅜
45½	28¾	45¾	38⅝	434,094,575	25	S. O. New York	40cQ	June 15, 29	34,100	39⅛	40⅛	39⅛	39⅜	+ ¼
77	31½	68½	57	(sh) 1,297,847	N.P.	Sun Oil	25cQ	June 15, 29	900	65¼	74⅞	65¼	74½	+ 9½
110	100	105½	100	$5,000,000	$100	do pfd	$1.50Q	June 1, 29	160	100	103⅛	100	100	— ¼
14¼	2½	12	7	(sh) 1,304,698	N.P.	Superior Oil Corp	....	Dec. 20, 20	32,900	7⅜	8⅛	7⅛	7⅞	+ ½
74¾	50	68⅛	57¼	$211,082,925	$25	The Texas Corp	75cQ	July 1, 29	23,100	62⅞	63	61¼	62⅞	+ ½
26⅝	12⅛	23⅞	16¼	8,380,340	10	Texas Pacific Coal & Oil	2½%a	June 30, 29	6,500	17½	17⅞	17⅛	17⅜	+ ⅜
41½	19⅝	38½	27½	(sh) 2,179,275	N.P.	Tide Water Oil Co	20cQ	June 30, 29	400	34	34⅛	33⅜	34⅛	— ⅞
100⅛	86¾	97½	89¾	$20,321,000	$100	do 5½% pfd	$1.25Q	May 15, 29	900	92⅝	93	92½	93	+ ⅜
25	14¾	23½	17½	(sh) 4,877,976	N.P.	Tide Water Associated	.....	Aug. 1, 27	19,500	19⅝	20	19¼	19⅝	0
91¾	81¼	90	84	$72,989,200	$100	do pfd	$1.50Q	July 1, 29	2,000	85⅜	87⅛	85⅜	87⅛	+ 1⅛
14½	6¾	13	9	(sh) 3,842,029	N.P.	Transcontinental Oil	....	.....	53,400	10¾	11⅜	10½	11¼	+ ¾
58	42¾	54⅛	46	$40,858,375	$25	Union Oil of California	50cQ	May 10, 29	4,800	47⅞	48¾	47¼	47½	— ⅛
128⅛	110	152	121⅞	31,101,200	100	Union Tank Car Co	$1.25Q	June 1, 29	3,000	145½	*152	144½	148	+ 1
44⅞	26	42⅞	28½	(sh) 488,359	N.P.	Warner Quinlan	50cQ	July 2, 29	21,400	32¾	35½	32¾	32¾	— ⅛
38	20⅛	37⅞	30¼	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Apr. 20, 29	2,600	34	34	33½	33⅝	— ⅜
22⅛	17¼	29¾	19½	(sh) 428,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	2,000	19⅝	20⅜	19½	20	0

*New High †New Low xEx-dividends ‡Also extras s-Stock Total Sales 1,035,690

Pittsburgh Stock Exchange

Transactions Week Ended July 5, 1929

	Sales	High	Low	Last	Change
Ark. Nat. Gas	1,300	9⅛	9	9	— ⅛
do pfd	3,109	8¼	8	8	— ¼
Devonian Oil	650	10	9	9	—1
Dixie Gas & Util	200	16½	16¼	16¼	+1¼
Lone Star Gas	2,628	*89	x82	89	+4
Plymouth Oil	310	24¼	24	24	—1
Salt Creek Cons	25	3½	3½	3½	+ ½

*New High xEx. Dividend

Pittsburgh Curb Market

Transactions Week Ended July 5, 1929

	Sales	High	Low	Last	Change
Ark. Gas "A"	790	9⅜	9¼	9⅜	0
Unlisted Pittsburgh Stock Exchange					
Lone Star W.I.	....	34½	32½	34	+1⅛
Rights					
Col. G. & E.	2,242	6¾	5½	6¾	+1⅝
Lone Star	4,667	6¾	6⅜	6¾	+ ⅜

Oil Company Earnings

Five Months	1929	1928
Barnsdall Corp	$3,406,807	$777,830

Navy Gas Head Resigns

PUEBLO, Col., July 6.—Harry E. Lynch, who has been president of the Navy Gas & Supply Co. of Pueblo here since its organization in 1925, resigned recently. Mr. Lynch plans to spend some time in vacationing at first but other plans have not yet been made known.

He will continue to hold his interests and to serve as director of the Navy company. He also continues as head of the Grand Oil Co., at Grand Junction, Col.

Mr. Lynch is widely known in Colorado. His first experience in the oil industry was gained in 1915 when he joined the Cudahy Refining Co., later acquired by the Sinclair Refining Co. He held various positions in the marketing end of both companies until January, 1921, when he resigned to enter business for himself.

Cleveland Stock Market

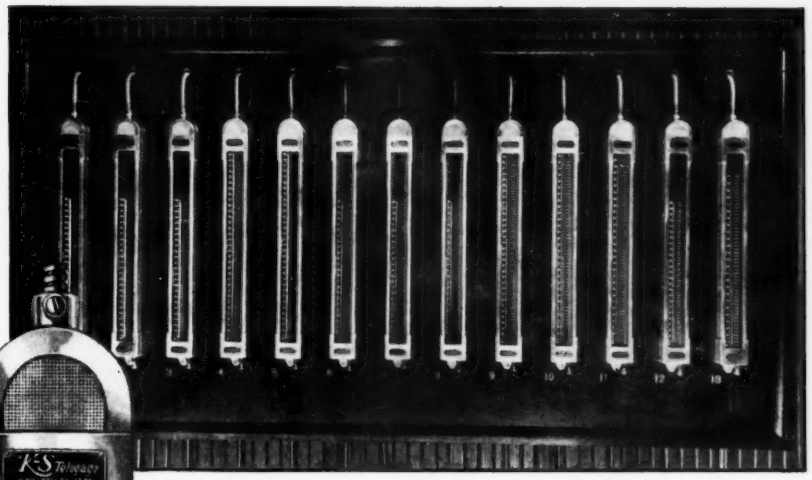
July 6	Par Value	Bid	Asked
Canfield Oil Co	$100	...	143
do pfd	100	103	...
Fred G. Clark	10	14	14¼
National Refining	25	...	36
do pfd	100	...	135
Paragon Refining	25	24	24⅜
do pfd	N.P.	41½	44
do ctfs. of deposit	...	24	25

xEx dividend.

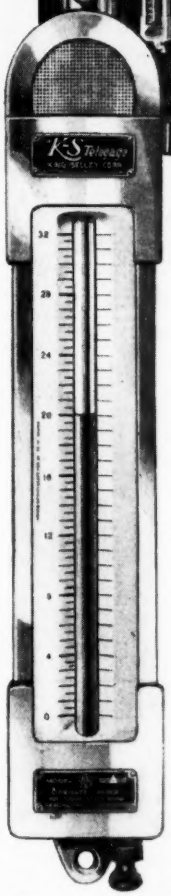
Salt Creek Producers Association—Dividend rate has been reduced from $3 a share a year to $2 a share. This reduction has been caused by the fall in volume of production in the Rocky Mountain fields.

Gilmore Oil Co.—Directors have proposed to increase capital stock to 1,000,000 no par shares and exchange present stock share for share for new stock. Plan is subject to written ratification of two thirds of outstanding stock.

THE HYDROSTATIC DISTANT READING GAUGE



Battery of thirteen Telegages on instrument board of Peerless Oil Co., Elyria, Ohio, used for checking contents of large gasoline storage tanks.



"How Much Have We Got in No. 3?"

When the president asked the superintendent that question, the superintendent didn't stammer or hesitate, he simply turned to the panel of Telegages on the wall, and answered,

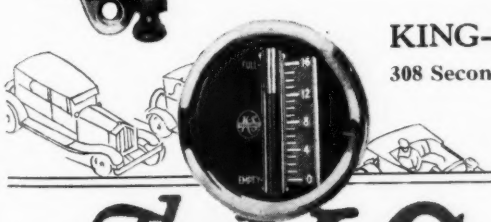
"20,000 gallons, sir."

"Pretty useful instrument board," the president remarked, as he turned toward the panel where a battery of K-S Telegages told the liquid depth of every tank on the premises.

"We couldn't keep running without it, sir," answered the superintendent. "It gives me real central control. No need to send a man out to risk life or limb on rainy and stormy days. All the information I need is right here in front of me, when and where I want it."

Day and night, with ease and dependability, the K-S Telegage tells at a glance the depth of liquids in storage tanks. Placed conveniently in office or control room, this scientific instrument guards your petroleum products against checking errors and production losses. The reliability of the Telegage is assured by the fact that it is a product of the world's largest maker of distant reading gauges.

Write for complete information, giving a full description of your requirements. Give the Baume or Specific Gravity of each liquid to be measured, the distance from tank to desired location of gauge, and size of tank. Descriptive folder sent on request.



KING-SEELEY CORPORATION

308 Second Street ANN ARBOR, MICHIGAN

New York: 44 Murray St.

Chicago: 471 Wrigley Bldg.

The K-S Telegage

BE CERTAIN WITH THE *K–S TELEGAGE*

Standard factory equipment on three-fourths of all cars selling for $700 or more.

Get full value from your advertising signs

REMOVE dirt and grime from roadside signs and illuminated advertising globes by cleaning them the Oakite way. Then you can get full value from every inch of display space.

Oakite cleaning washes off all trace of dust, stains and oil film. Leaves advertising globes brilliant and attractive. Makes signs legible and dirt-free. And Oakite materials do this work quickly, thoroughly — without scrubbing and scraping—at amazingly little expense for supplies and labor.

Our booklet "Oakite in the Oil Industry" tells why and how. Write for a copy.

Oakite Service Men, cleaning specialists, are located in leading industrial centers of U. S. and Canada.

Manufactured only by

OAKITE PRODUCTS, INC.

42C Thames St., New York, N. Y.

OAKITE

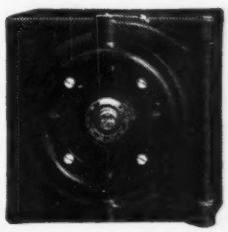
Industrial Cleaning Materials and Methods

Another Filling Station Raided!

A SHORT "joy ride" from a nearby city—a quick attack upon your filling station, and the thieves return to their haunts well supplied with cash.

Only the best protection obtainable—the York Round Door Chest—is good enough to resist the stubborn attacks of these cracksmen.

Follow the lead of the largest chains of filling stations—install York Round Door Chests.



YORK SAFE and LOCK COMPANY
YORK, PA.

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended July 6 Sales	First	High	Low	Last	Change
22⅜	14⅞	18¾	14¼	£4,126,460	£ 1	Anglo-American Oil	36c	June 5, 29	3,800	15	15	14⅝	15	0
21¼	15	18	14¼	.....	.....	do certificates	36c	June 5, 29	.....	.....	.....	.....	.....	.....
20½	14⅜	17	13	.....	£ 1	do cts. non-voting	36c	June 5, 29	100	13	13	13	13	— ⅜
5	1¼	2⅜	1⅛	(sh) 500.000	N.P.	Atlantic Lobos	.....	.....	200	1⅝	1⅝	1⅝	1⅝	0
9¾	3¼	4⅛	1½	$10,000,000	$50	do pfd	.....	.....	200	2½	2½	2	2	+ ⅜
56	44½	46½	37¾	$1,000,000	25	Borne-Scrymser	‡$1S.A.	Apr. 15, 29	100	37¾	37¾	†37¾	37¾	— ¼
76	58	74¼	58⅜	10,000,000	50	Buckeye Pipe Line	‡$1Q	June 15, 29	800	68	69¼	65¼	69	0
161	117¼	170¼	140½	3,000,000	25	Chesebrough Mfg	‡$1Q	June 30, 29	200	168	168	167¾	167¾	— ½
23	16	29	17⅛	36,123,350	10	Continental Oil	.....	Dec. 15, 27	18,200	20⅜	21½	20¼	21¼	+ ½
17½	9½	11⅜	8	.....	N.P.	Creole Petroleum	.....	.....	3,900	8⅛	8¼	8	8¼	+ ⅛
82	67	75¾	62	1,500,000	50	Cumberland Pipe Line	$1Q	June 15, 29	50	69	69	69	69	— 2
88	64½	70½	59¼	5,000,000	100	Eureka Pipe Line	$1Q	June 1, 29	150	60	60	60	60	— 2
13	4¼	6⅝	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	.....	.....	.....	.....	.....	.....
86	26	90	73½	4,000,000	100	do new pfd	.....	June 30, 26	10	82	82	82	82	0
89¾	35	88	73½	2,000,000	100	do old pfd	.....	June 30, 26	10	77½	77½	77½	77½	0
114¾	59¼	124½	89⅝	73,685,700	25	Humble Oil & Refining	‡30cQ	July 1, 29	178,000	117⅜	122⅞	115⅝	121⅜	+ 6½
290½	176½	340½	285	20,000,000	100	Illinois Pipe Line	$10S.A.	June 15, 29	1,500	306	308¾	303	308¾	+ ¾
104	56¾	119⅝	88	(sh) 6,605,442	N.P.	Imperial of Canada	12½cQ	June 1, 29	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	do new	.....	.....	5,200	27	28⅞	27	28	+ 1¼
91⅞	74⅝	104	81¼	$5,000,000	$50	Indiana Pipe Line	‡$1Q	May 15, 29	3,800	100¼	*104	104¼	104	+ 9
55	35	65½	46⅛	(sh) 7,123,544	N.P.	International Petroleum	12½c	June 25, 29	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	do new	.....	.....	19,300	23	26⅞	22⅝	26¼	+ 2¾
32⅜	19⅛	25⅞	21⅜	$6.363,350	12.50	National Transit Co	25cQ	June 15, 29	700	23	23	22⅝	23	0
75	38½	85	72	5,000,000	100	New York Transit	.....	July 15, 26	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	do new	.....	.....	500	10	14	10	14	+ 1⅛
69	56¼	63	52	2,000,000	50	Northern Pipe Line	$2S.A.	July 1, 29	150	54¾	58¾	53	58¾	+ 4
83½	58½	75⅜	64⅛	60,000,000	25	Ohio Oil Co	50cQ	June 15, 29	1,000	72	73¼	70⅞	71⅝	— ⅜
84	28	44½	23⅛	10,000,000	25	Penn Mex. Fuel	75c	Dec. 16, 28	100	26⅞	27½	26⅛	27½	+ 1½
220	167	50	38½	4,000,000	25	Solar Refining	$1.25S.A.	June 20, 29	300	39¾	39¾	†38½	38½	— 1⅜
19	12	22½	13	1,000,000	10	Southern Pipe Line	$1	Mar. 1, 29	200	21	21½	21	21½	+ ⅝
71⅞	36¾	60¼	40⅛	30,000,000	25	South Penn Oil	50cQ	June 30, 29	6,700	53⅛	54	52¼	52⅞	— ⅛
102	70	70	62¾	1,750,000	50	South West Pa. Pipe Lines	$1	July 1, 29	200	62¾	63¼	62¾	63¼	+ ¼
95⅞	70⅞	103¼	54	348,175,069	25	S. O. Indiana	62½cQ	June 15, 29	20,900	55⅜	58	55½	58	+ 2¼
27¾	15	21⅞	18	8,000,000	25	S. O. Kansas	.....	June 16, 24	1,500	21½	21¾	21½	21½	— ⅜
49	44	45¼	35⅛	25,654,516	10	S. O. Kentucky new	40cQ	June 30, 29	4,400	37¾	39	37¾	38⅝	+ ⅞
54⅜	39⅞	50¼	45½	4,649,225	25	S. O. Nebraska	‡62½cQ	June 20, 29	200	48	48	48	48	+ 1¾
134	71	129	110¼	14,000,000	25	S. O. Ohio	62½cQ	July 1, 29	450	120½	121¾	120	121	— ¾
125	116	124½	115	7,000,000	100	do pfd	$1.75Q	June 1, 29	10	116¾	116¾	116¾	116¾	0
23½	16	18	14	861,466	25	Swan Finch Co	30c	Jan. 15, 29	.....	.....	.....	.....	.....	.....
111	72	133¾	105½	126,154,000	25	Vacuum Oil	$1Q	June 20, 29	3,800	116⅛	117⅞	115⅛	116	— 1⅜

•New High †New Low ‡Also Extras

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Sales	Week Ended July 6 First	High	Low	Last	Change
1½	.53	.72	.375	$ 5	Amer. Cons. Oilfields	1,800	½	½	7/16	½	0
9½	3⅛	8⅝	3½	N.P.	Amer. Maracaibo	800	4	4	3⅞	3⅞	0
4½	2¼	5	1⅞	$ 10	Argo Oil	100	2	2	2	2	— ¼
3¾	3⅜	9½	3¾	N.P.	Arkansas Nat. Gas	20,600	9⅛	9¼	8⅞	9⅛	— ⅛
.....	.....	9½	6¾	N.P.	do A	12,800	9⅜	*9½	9¼	9⅜	— ⅛
.....	.....	9	7⅞	10	do pfd	100	8⅛	8¼	8⅛	8¼	+ ⅛
55	32¾	62	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23⅞	3¾	4⅞	2⅝	25c	Carib Syndicate	8,400	3½	4¾	3½	4½	+ 1⅜
.....	.....	36⅞	27¾	N.P.	Cities Service new	99,000	35⅛	*36⅞	35⅛	36⅞	+ 1⅞
103½	94½	98½	88¾	100	do pfd	1,600	95⅝	95⅝	94⅞	95	— ¾
9⅝	8⅞	9¼	8⅞	10	do pref. B	100	9	9	9	9	0
97	88½	96	92	100	do pref. BB	.....	.....	.....	.....	.....	.....
2¼	1	1½	⅝	1	Colombia Syndicate	2,300	1	1	⅞	⅞	0
17¾	9¾	15	6	N.P.	Colon Oil	1,700	7	8	7	8	+ ⅞
8⅞	6¼	11⅛	6½	10	Consolidated Royal	1,600	6¾	6¾	†6½	6¾	0
.....	.....	75½	45	N.P.	Cosden Oil Co	23,400	75½	87½	70	87½	+17½
.....	.....	.....	.....	.....	do new	150	71	72	71½	71½	+ ½
3¼	.76	2½	1⅛	N.P.	Crown Central	1,400	1⅝	1⅝	1½	1½	0
15	6¾	11¾	8	N.P.	Crystal Oil	.....	.....	.....	.....	.....	.....
50	48	51⅛	51⅛	$100	do pfd	.....	.....	.....	.....	.....	.....
33½	8⅛	26	14	N.P.	Darby Petroleum	7,800	16¼	16½	15¼	16⅜	0
13½	7⅞	.....	.....	.....	do trust ctfs	.....	.....	.....	.....	.....	.....
2⅞	1	10⅞	2	N.P.	Derby Oil & Refining	8,500	9¾	10½	9⅝	10⅛	+ ⅝
21⅛	7½	44	20⅞	N.P.	do pfd	100	44	*44	44	44	— ¼
165	101⅛	189	142⅛	$25	Gulf Oil Corp	3,800	175⅛	178⅜	173⅝	177⅝	+ 5⅜
7½	5⅜	7½	3⅜	5	Homaokla Oil	1,900	4	4	3⅞	3¾	— ¼
3⅜	1	2⅞	1¼	10	Intercontinental Pet	6,400	1⅜	1⅜	1¼	1⅜	— ⅜
3	¼	3⅝	1½	N.P.	Kirby Petroleum	100	1⅝	1⅝	1⅝	1⅝	— ⅛
9⅜	5⅛	6⅛	2⅞	N.P.	Leonard Oil & Dev	4,800	4	4	3¾	3¾	— 1
43⅜	20	38⅞	24¾	N.P.	Lion Oil & Refg	.....	.....	.....	.....	.....	.....
69⅛	48⅛	87	67	$25	Lone Star Gas	1,900	81⅛	82⅜	79	81	— 3
.....	.....	.....	.....	.....	do new	2,900	33	34¼	32¾	33¾	— 1¼
1⅞	.50	1¼	⅜	1	Magdalena Syndicate	400	⅜	⅜	⅜	⅜	— ⅛
48½	32	38½	21¼	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
40½	40½	.....	.....	$10	Mexican-Panuco	.....	.....	.....	.....	.....	.....
8	2¾	6⅜	3⅜	N.P.	Mexico-Ohio Oil	1,400	4	4	4	4	0
.74	.20	.....	.....	$10	Mexico Oil	.....	.....	.....	.....	.....	.....
.....	.....	42	15⅞	N.P.	Missouri-Kan. P. L	5,400	28½	30⅞	27½	30½	— 2½
1¾	.76	1½	⅞	1	Mountain & Gulf	100	⅞	⅞	⅞	⅞	— ⅛
28⅞	19½	22⅞	14½	10	Mountain Producers	1,900	15¼	16¼	†14½	15	— ⅛
.....	.....	35⅞	24¾	N.P.	Nat. Fuel Gas (new)	7,900	32⅛	*35⅞	32⅛	32⅜	— 2½
5⅜	4¼	5	3½	5	New Bradford	100	3½	3½	3½	3½	— ¼
5½	3	3½	3	10	New England Fuel	100	3	3	3	3	0
11⅞	7⅛	9⅜	5½	1	New Mex. & Ariz	.....	.....	.....	.....	.....	.....
15½	11½	24½	16	25	New York Petrol	.....	.....	.....	.....	.....	.....
40	39⅛	.....	.....	.....	North Amer. Oil Cons.	.....	.....	.....	.....	.....	.....
13¼	8⅜	11⅝	.83¾	N.P.	North Cent. Texas	500	11	11⅜	11	11⅛	0
.....	.....	19¼	13	N.P.	Oil Stock, Ltd. A	400	13¼	14⅜	13¼	14⅜	+ ½
.....	.....	18¼	15	N.P.	do B	.....	.....	.....	.....	.....	.....
26¼	20	23¼	16	N.P.	Pacific Western Oil	800	16⅛	16⅞	16	16	0
6	2¼	3½	1⅝	N.P.	Pandem	300	1⅝	1⅝	1⅝	1⅝	0
15⅝	8½	10¼	6	N.P.	Pantapec	700	6⅛	6½	6	6	— ¼
20	10⅝	25½	22½	$25	Paragon Refg. B. ctfs	.....	.....	.....	.....	.....	.....
.09	.04	.....	.....	N.P.	Peer Oil Corp	.....	.....	.....	.....	.....	.....
7¾	4⅞	7⅜	4⅜	$10	Pennok Oil	.....	.....	.....	.....	.....	.....
.....	.....	34½	26½	N.P.	Petroleum Corp	2,600	27	28½	27	28½	+ 1⅜
5⅜	3⅛	.....	.....	$ 5	Pittsburgh Oil & Gas	.....	.....	.....	.....	.....	.....
31⅜	26½	30	22	N.P.	Plymouth Oil	400	22	24⅞	†22	23⅛	+ ⅜
18	8	16	11½	25	Red Bank Oil	100	12	12	12	12	0
13	4⅛	8½	4½	N.P.	Reiter-Foster	200	4⅝	4⅞	4½	4⅞	+ ⅜
31½	23¼	25½	23⅞	$25	Richfield pfd	100	24½	24	24	24	— ⅛
.....	.....	29	23	.....	Root Refining pfd	400	24½	25	24½	25¾	0
12	4⅝	11	6½	N.P.	Ryan Consolidated	100	6⅜	6⅜	6⅜	6⅜	0
7¼	5½	5⅞	3⅛	$10	Salt Creek Cons	300	3⅛	3⅜	3⅛	3⅜	+ ¼
35	23¼	25⅞	17¾	10	Salt Creek Prod	900	19¾	19¾	18¼	18½	+ ⅛
3½	1	2½	1⅜	5	Savoy Oil	.....	.....	.....	.....	.....	.....
40	27	33¼	32	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
.....	.....	24	17½	N.P.	Southland Royalty	1,600	17⅞	18⅛	17⅝	17⅝	— ¼
.....	.....	23	15¼	N.P.	Texon Oil & Land new	700	15¾	16	†15¼	16	+ ½
22⅞	13	16⅞	11⅜	$10	Tidal Osage	.....	.....	.....	.....	.....	.....
21¼	13⅛	16½	10⅞	10	do not-voting	.....	.....	.....	.....	.....	.....
93¾	75	137½	80	100	Transcontinental pfd	200	137½	*137½	137½	137½	+ 3
74¼	18	70½	66	10	Venezuela-Mexico	400	69	69½	69	69½	— 1
9⅛	4¾	6½	3⅝	5	Venezuelan Petrol	1,800	3⅞	4	3⅞	4	+ ⅛
8¼	4⅞	9⅛	4⅛	1	Woodley Petroleum	800	4¾	4¾	4⅜	4⅜	— ⅜
⅜	⅛	5⅜	1⅝	25	Y Oil & Gas	200	1⅞	1⅞	1¾	1¾	+ ⅛

•New High †New Low

New York Curb Bonds

Week Ending July 5, 1929

	High	Low	Last	Change
Beacon Oil 6s '36	116	115½	115½	— ½
Cities Serv. G. 5½s '42	88⅛	86⅝	86⅝	+ ⅛
Cities Serv. G. P. 6s '43	94⅞	94	94	—1
Cont. Oil 5¼s '37	93½	93	93	0
Empire O & R 5½s '42	87½	86⅝	86⅝	0
Gulf Oil 5s '37	99¾	98⅞	99¼	+ ¼
Gulf Oil 5s '47	100	99¾	99¾	0
Indep. Oil 6s '39	112	109¼	109¼	—1¾
Richfield Oil 6s '44	100	99	100	+ ¾
Richfield Oil 5½s '31	101	100½	101	+ ½
Sun Oil 5½s '39	100	99½	99¾	+ ¼

Oil Dividends

	Amount	Payable	Stock of Record
Amerada Corp. q	50c	July 31	July 15
Gilmore Oil q	30c	July 30	June 15
Salt Creek Prod. q	50c	Aug. 1	July 15

New York Bonds

Week Ending July 5, 1929

	High	Low	Last	Change
Atlantic Refg. deb. 5s	101¼	100½	100½	— ⅛
Cal. Pet. 5s	96½	96½	96½	+ ½
Cal. Pet. 5½s	100	99	100	+1
General Asphalt 6s	106	105½	105½	+ ½
General Pet. 5s	100¾	100¼	100¼	0
Humble Oil & Refg. 5s	100¼	100	100¼	+ ¼
Humble Oil & Refg. 5½s	100⅞	100½	100⅞	+ ⅛
Pan Amer. P & T 7s	104⅞	104½	104⅞	+ ⅜
Pan Amer. P & T 6s	108	106¾	107½	+ ½
Pan Amer. P & T 6s	94	93½	94	+ ¼
Phillips Pet. 5¼s	89¾	88¾	88¾	+ ¼
Pure Oil 5½s	97½	97	97⅜	0
Shell Union Oil 5s	95⅜	94	95⅜	+1⅜
Sinclair Con. Oil 7s	101½	101½	101½	+ ¼
Sinclair Con. Oil 6½s	100	99¼	100	+ ½
Sinclair Con. Oil 6s D	99⅛	99	99	— ⅛
SinclairCon.OilCrude5½s	95½	94½	94¾	+ ¼
Sinclair Pipeline	93⅝	93½	93½	0
Skelly Oil 5½s	93	92¾	92¾	— ¼
S. O. N. Y. 4½s	98⅛	94½	95	+ ½
S. O. N. J. 5½s	101	100½	100½	— ½
Union Oil of Calif. 6s A	106½	106½	106½	— ⅜
Union Oil of Calif. 5s C	97½	96	97½	+1½
White Eagle Oil 5½s	99⅜	99	99⅛	0

Continental's June 27 Contracts Suspended

NEW YORK, July 5.—Because of confusion in the stocks of the Continental Oil Co. of Maine and the new Continental Oil Co. of Delaware, which succeeds the Marland Oil Co., governors of the New York Stock Exchange have postponed performance of contracts for delivery of Continental Oil Co. of Delaware stock made on the exchange June 27, the first day it was offered for trading.

The Continental of Maine stock has been traded on the New York Curb Market but never on the larger exchange. Its price was around 21 June 27 and the new stock should have been on a level with Marland around 35. Although Continental of Delaware stock had not been exchanged June 27 for Marland stock, trading in it began.

After two hours the confusion in names became so great that trading in Continental of Delaware was suspended for the day.

The Continental of Delaware stock was admitted to the New York Stock Exchange June 26.

Southern Pipe Line Sale Approved

CLEVELAND, July 5.—The Public Service Commission and 71 per cent of the stock of the Southern Pipe Line Co. have approved the sale of part of the lines of the pipe line company to the Manufacturers Light & Heat Co. Southern received $100,000 cash and a six-month 5 per cent note for $855,-056.

President Forest M. Towl of Southern said officers expected to pay a special dividend of $10 a share at the end of 1929.

Surveys Motor Industry Importance

CLEVELAND, July 5.—There are 1688 persons employed in selling and servicing automobiles in Lincoln, Neb., according to a recent survey there as reported in the weekly bulletin of the Nebraska Independent Oil Men's Association. Lincoln has a population of 71,000 which would make 2.37 per cent of the population engaged in the business.

The survey included auto sales, supplies, parts manufacturing, finance and insurance, tire agencies, garage and service, used car sales and filling stations. Annual pay-roll of the 1688 persons is $2,531,198 or about $1500 per person.

In and around Lincoln are 138 drive-in stations and 40 curb pumps. Employes total 389 with a pay-roll of $306,270 per year or $916 per person.

THE OIL INDUSTRY EXCHANGE

Positions Wanted

ATTORNEY with 5 years experience in securing choice service station locations while employed by two large oil companies, and with considerable sales and real estate experience, desires permanent position with successful oil company or independent company. Excellent references. Will travel if necessary. Address Box 368.

Situations Open

GRADUATE CIVIL OR MECHANICAL ENGINEER WANTED

experienced in oil refinery layout and design. State age, experience and salary desired in first letter.

Address Box 361

WHOLESALE SALESMAN

Large oil company operating in the East requires man to work out of Pittsburgh office selling refined oils in tank car lots to jobbers in West Virginia, Western Pennsylvania, and Eastern Ohio. Permanent position with excellent opportunities.

In answer please show salary desired, age, education, marital status; and all employments, with brief outline of duties; and if salesman, products sold, and territory covered.

Address BOX 367

MARKETING MANAGER

A large, successful oil company operating in the East, affiliated with one of the world's largest oil groups, requires the services of a general sales manager of high calibre to assume direct responsibility for all of its wholesale and retail sales, exclusive of its tank car sales to jobbers.

The company's branches are grouped in five districts. The five district managers will report to the general sales manager, who, in turn, will report to the Company's executive officer.

The position must be filled by a sales executive of outstanding ability. He must be a man of mature judgment, thoroughly trained in marketing practice; a man who has a working knowledge of research technique, who is familiar with the technical aspects of advertising, and with the part advertising plays in a complete sales program.

In addition to these analytical faculties, the position requires an expert salesman and a man of commanding personality, who is able to successfully carry out the policies he formulates, prepare plans for the guidance of sales groups, and handle men in a manner that will inspire loyalty and secure maximum results.

The general sales manager's headquarters will be located in one of the larger cities on the east coast; but much of his time will be spent in the field with his men.

The position is permanent, a splendid opportunity as it stands today, and of even greater interest because of its future possibilities.

Address Box 363

Situations Open

ASSISTANT SUPERINTENDENT WANTED

for a 10,000-barrel Mid-Continent refinery. A man with technical education preferred. Applicant must be thoroughly familiar with pipe stills, cracking stills and all up-to-date refinery equipment.
Give full particulars, age, nationality and education in first reply. Attach recent photo.

Address Box 369

Business Opportunities

PENNSYLVANIA REFINERS: IF YOU CAN USE good 1925 model 33 International Truck, starter, pneumatics and 500-gal. tank as part payment on car of 100% pure Pennsylvania Motor Oils, write Box 370, care this publication.

For Sale

SMALL MOTOR OIL AND GREASE JOBBING BUSINESS FOR SALE

Operating in New York and Westchester Counties. Established trade and assured income for small cash investment.

Address Box 371

FOR SALE

Three Bowser oil fountains, large type, perfect condition, will sell reasonable.

Address Box 372

Patents

ROYAL E. BURNHAM
Attorney-At-Law

Patent and Trade-Mark Practice Exclusively

Continental Trust Building
Washington, D. C.

Miscellaneous

WHAT IT COSTS

"For Sale," "Wanted to Buy," "Help Wanted," "Business Opportunities."

"Miscellaneous" classifications, set in type this size without border—10 cents a word. Minimum charge, $3.00

"Position Wanted"—5 cents a word. Minimum charge $1.00.

Advertisements set in special type or with border—$4.00 per column inch.

Copy must reach us not later than Friday preceding date of issue.

All advertisements carried on this page are payable in advance.

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